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ABSTRACT

This guide for women interested in nontraditional occupations (NTOs) describes nontraditional occupations and offers suggestions for deciding whether an NTO is appropriate for the individual. The need for women in NTOs is first addressed. Rewards are considered, and a checklist is provided to test for readiness to choose an NTO. These myths regarding women in NTOs are described: certain jobs are only for men or women, women lack strength for "men's work," women lack temperament for "men's work," women cause disruptive sexual relationships on worksite, and women cause employers additional expense. Real barriers to success in an NTO are outlined--both internal (sex stereotyping, lack of self-confidence, age, concern for femininity) and external (finances; child care; vocational/academic preparation; social attitudes; harassment, isolation, and discrimination). Some general areas of the traditionally male occupations are overviewed, including engineering and science technology, industrial production, mechanics and repairer occupations, and construction trades. Sketches of sample jobs in each area cover job duties, job environment, required interests and abilities, training needed for entry-level position, occupational outlook, benefits and advancement opportunities, average national starting salaries, and some similar jobs. Suggestions are offered for finding training and succeeding in training or on the job. (YLB)

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TIME FOR A CHANGE:

A WOMAN'S GUIDE TO NONTRADITIONAL OCCUPATIONS

by

Constance Drake Cauley

Developed by

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We recommend our companion volume for planners and coordinators of nontraditional occupations programs for women: The Nuts and Bolts of NTO: A Handbook for Recruiting, Training, Support Services, and Placement of Women in Nontraditional Occupations. By Jo Shuchat with Genii Guinier and Aileen Douglas, Technical Education Research Centers. Available from Technical Education Research Centers, 44 Brattle Street, Cambridge, Massachusetts 02138

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FOREWORD

America is changing. Society, the economy, the work force--all are undergoing radical changes. These changes have a dramatic impact on women. They are sending more and more women into the labor force, and many more are about to join it. This book is for you. It is a guide for women who are working outside the home or thinking about it. It is for married women or single women. It is for divorced, widowed, or separated women. It is for young women and middle-aged women; high school dropouts and college graduates.

In writing this guide, we talked to 85 women throughout the country. All of them are working or training in nontraditional jobs--jobs which have historically been held by men. (Examples include: plumber, machinist, mechanic, and engineering and science technician.) Most of the information and quotations used throughout the book came from these women.

Not all women, of course, are suited to nontraditional work. But it is important that you know something about these jobs before discounting them. You should know both the good and the bad; you should have enough knowledge to make a valid choice. We have tried to present both the advantages and the disadvantages of nontraditional careers as objectively as possible.

Women working in nontraditional jobs may be a new idea to many of us. But is "doing a man's work" really so unusual? Is it really so "nontraditional" to be a truck driver, an auto mechanic, an electronics technician--or even an avionics trainee? We can, of course, point to all the plumbing, small appliance repair, and car repairs that many women do at home every day. And we can point to the fact that in 1979 there were over 700,000 women in the craft occupations alone. And that isn't counting the engineering and science technologies which women are rapidly entering.

We can do more, however, than look at today's society to ask "who says women can only do women's work?" We can also point to colonial times when the wife worked alongside her husband at trades such as printing, grist mill operating, furniture building, leather-working, farming, and shopkeeping. And she wasn't just a helper, either. She was as much a "craftsman" as he was. If the husband died, the wife went right along running the business--and nobody regarded it as unfeminine or strange.

Then there was the Industrial Revolution around 1820. Women went to work in the mills, the shops, and the garment factories and came to make up over 10 percent of the labor force. Industry continued to expand through 1870 until the Great Depression of 1929. Women provided as much as 22 percent of the industrial labor during that period. And some of us remember Rosie the Riveter who went to work during World War II. Well, she went to work during World War I too. And she's hanging in there today.

So read this book. And if you think nontraditional might be the answer for you--you won't be alone. There are hundreds of thousands of women like you already out there. And there are many others who--like you--are thinking about it.

ACKNOWLEDGMENTS

This Guide for women interested in nontraditional occupations was developed under provisions of a contract from the U.S. Department of Education, Office of Vocational and Adult Education, through the Technical Education Research Centers, Cambridge, Massachusetts. Concepts and ideas were gleaned from a host of agencies, institutions, groups, and individuals. In addition, in researching the project, 160 directors and 85 students of nontraditional programs for women across the country were interviewed. The time and graciousness of all of these individuals as well as their ideas and information are greatly appreciated.

Of enormous assistance also, were the institutions and individuals that field-tested the Guide. A special thanks goes to Altoona Area Vocational-Technical School, Broward Community College, Northern Essex Community College, Trident Technical College, and Waukesha County Technical Institute. The Directors of the pilot projects were most generous with their time and offered outstanding insight and suggestions to the project staff. In addition, over 125 of the students in these test sites volunteered their written evaluations of the Guide.

We are particularly indebted to John K. Fleck, Trident Technical College, for sharing his artwork portraying women in nontraditional occupations. The project staff is equally grateful to the Advisory Committee which assisted so ably in so many ways, and to the Project Officers, Frances Hamilton, Pariece Wilkins, and Richard DiCola, for their comments, suggestions, and encouragement throughout the duration of the project. We also extend our special thanks to the Women's Outreach Project staff of Technical Education Research Centers of Cambridge. Jo Shuchat, Genii Guinier, and Aileen Douglas became not only outstanding colleagues, but valued friends.

As anyone who has been responsible for directing a developmental project well knows, the staff assigned to carry out the work determines the quality and success of the venture. In particular, I want to note the continuing contributions of Constance Drake Cauley and Geraldine G. Nyland, whose research and analysis provided the basis for the Guide. Mrs. Nyland's analytical talent and her resourcefulness were a welcome asset and Dr. Cauley's conceptualization and writing made the Guide a readable and informative tool for women. Finally, I speak for all of the project staff in thanking Frances L. Courtney, who always seems to know what needs to be done.

Her insight, as well as her skills, made her an invaluable contributor. While the staff has been largely responsible for the development of the Guide, I take full responsibility for the content of what has been included in the text.

Mary L. Ellis
President, Ellis Associates, Inc.

September, 1981

TIME FOR A CHANGE?

THE NEED FOR WOMEN IN NONTRADITIONAL OCCUPATIONS

> My husband died when he was twenty-nine. We had two kids. I went back to school for commercial art or legal secretary. But I took an industrial orientation class and discovered my creative urge would be satisfied with drafting, plus I could get a job, plus it was good money. I got a part-time job when I finished school. Now I'm getting my BS in engineering. (Jane C.)
>
> I was a clerk and the office was a dead end. In college I ran drills and the wood lathe, so I knew I could work machines. Now I'm a machinist apprentice and my husband loves it--it took the threat off him as the sole support....If I'd been counseled right in high school, I would have gone into engineering--I was in the ninety-eighth percentile in mechanical ability. (Joan C.)
>
> Before my divorce I was an LPN. But it wasn't good--irregular hours, low pay, no advancement....I have a ten-year old son and I was interested in any job that would pay a good salary. My husband was in electronics, so I'd learned something about it. I decided I could do that too. (Linda O.)
>
> I'm single and I've tried a lot of jobs. But this is the first time that I really enjoy my job! I ran switchboard, did filing, the same thing every day. But being an electrician is a challenge. It's always something new--you have to use your brains. I love doing what I do. I dig it--I really do! (Charmaine P.)

Whether you're married, widowed, separated, divorced or single, you may be one of the more than 40 million women who have joined the work force. For the first time in history, over half of all women sixteen years of age or over are working. And that does not count those who want to work but can't find jobs that pay enough to support themselves and their families. In 1978 alone, women accounted for almost 60 percent of the growth in the labor force. Some of these women began working in the skilled trades and technologies--jobs commonly referred to as "nontraditional occupations for women."

The reasons are simple. You may support only yourself, yourself and your family, or you may be adding to your husband's income in the face of high inflation. Whichever is your situation, you need more than just a job--you need a job that pays a living wage. It is a fact that women make up nearly one-half the work force today. But despite that fact, women earn approximately sixty cents for every dollar earned by men.

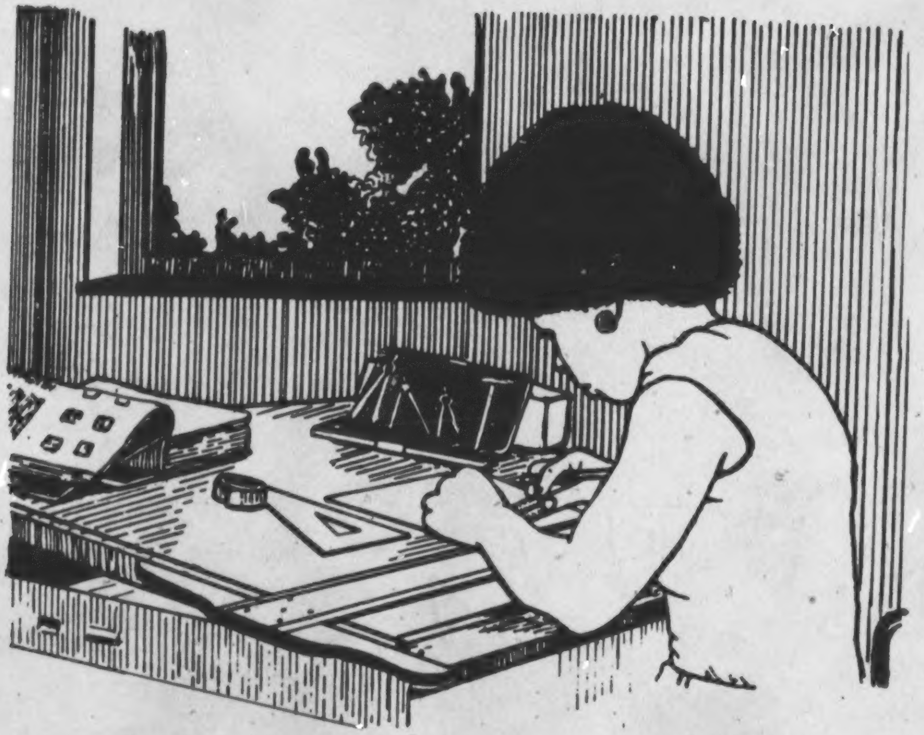
There are several reasons for this gap. One of the most significant is that women are concentrated in "traditional occupations," which are the lowest paying of all the major occupations. Nearly 80 percent of women workers are clustered in primarily "pink collar" jobs. These consist mainly of factory, service, clerical and health jobs, and retail sales. The women of the "80 Percent" are assemblers and sewing machine operators; household workers and waitresses; secretaries and sales clerks; nurses, teachers, and social workers. Less than six percent of workers in the high-paying skilled and semi-skilled craft jobs are women.

Take for example, the woman who pays for three to four years of full-time classroom training to become a nurse. (Or a teacher or social worker.) Such a woman is a professional--among the highest paid in the traditionally female occupations. Compare her to the man who becomes a business machine repairer. Business machine repair can be learned in a one-year technical program. Or he can occasionally be hired right out of high school as a trainee. A few weeks or months and one to three years of on-the-job-training will qualify him for a salary several thousand dollars a year higher than that of the nurse, or the average woman in a traditional occupation. And while he's learning, he will also be earning--almost as much as the woman will earn only after she graduates from a college program. Although most business machine repairers are men, there is no reason why women should not enter that or other blue-collar and technical occupations. After all, not all women make good social workers and sales-clerks, and not all women like being teacher's aides and nurses.

Jane C., the young widow who became a drafter, says that "the hardest thing was to figure out what I wanted to do with my life." She had been a clerk and liked the idea of legal secretary. Legal secretary is one of the highest paying jobs in the clerical field. It still offers considerably less money, however, than most jobs in the blue-collar and technological field.

When Jane considered following her creative interests, she thought of commercial art. The commercial art field, however, is highly competitive, and lower in demand. It is, of course, a traditionally "acceptable" field for a woman. Drafting was an ideal solution to her dilemma. In drafting she could combine her interest and ability with a job which--in her community--was in high demand. It was also one which pays well.

Why didn't Jane think of drafting before? Because all through grade school, all through high school, and at home with her family and friends, she had learned that some jobs were for men and others were for women. Men were engineers and electricians. Women were mothers and housewives. No one ever expected her to have to support even herself, to say nothing of a family. But it happened. And when it did, Jane thought in the same terms she had when she was growing up. She asked herself what the different (women's) jobs were that she could do. Fortunately, she realized that she didn't have to limit herself this way. And when she did, she opened up a world of possibilities--most of them enabling her to earn up to twice the salaries that traditional "women's jobs" paid.



THE REWARDS OF NONTRADITIONAL OCCUPATIONS

Nontraditional work has many rewards. For women it almost always means greatly increased income. But money isn't everything, despite today's economy. Nontraditional jobs also mean better advancement possibilities and often better fringe benefits. And there's still the matter of job satisfaction. Some women find a great deal of satisfaction in traditional work. They may not care that it doesn't pay too well. Others, however, would enjoy the work if it only paid better or would lead to a better-paying job. Still others simply have little or no interest in the traditionally female jobs.

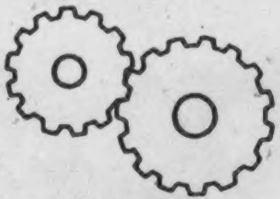
If you're in either of the latter two categories, nontraditional work can bring you tremendous rewards. It can also mean rewards for your family--and not just the obvious ones. It may bring food to your table, pay a medical bill, or finance a college education. But it doesn't stop there. As Elaine N. explains, "I went into nontraditional work for the money," she said. "But you can't put a price on what I've got. I feel useful now. I feel more confident in myself--a big difference. There will always be problems--but I know I can handle them now."

As Elaine N. learned, when you're happy with your job and happy with your salary, you will also be happier with yourself. You can gain confidence in yourself and a genuine feeling of accomplishment. You may discover you can do something you never knew you could handle and you can do it well. You can support yourself and your family or share with your husband in supporting the family. You are happy, confident and successful--what more can you give yourself or your family?

Then there are the benefits to employers. Employers need workers who are qualified, capable, and who produce. They are generally satisfied with anyone who meets these needs, male or female. Many of them speak of women's motivation. They note their persistence and desire to be not just okay, but to excel in their new careers. Employers who once resisted hiring a woman often find themselves asking for "more just like the first one."

The rewards don't stop, however, with the women and the employers. They actually go far beyond that to the national interest. American technology creates thousands of new jobs every year. Workers change jobs and leave openings behind them, while others grow old and retire. Hundreds of thousands of jobs open up and have to be filled with new workers.

But the war babies have grown up and are thinking ahead to retirement. And until very recently, there has been a steady decline in the birth rate. All of this clearly points to a shortage of younger workers in the next two decades.



We can't stop producing if America is going to maintain the standard of living we want. The opportunities for women to step in and play a greater role in the American labor force are unlimited. Women in the work force will not just be tolerated. They will be a necessity if the American economy is to flourish and grow.

WHERE ARE YOU NOW?

As Jane C. said, "the hardest thing was to figure out what I wanted to do with my life." Choosing a career or an occupation is a complicated but important task. The decision to enter a traditional or nontraditional occupation can be even more difficult. There are many advantages to nontraditional jobs. But there are disadvantages as well. Besides raising your salary, a nontraditional career may cause major changes in your lifestyle and possibly in family or personal relationships. It may also mean overcoming obstacles that women in traditional jobs are not faced with. There are many factors to be considered before making that choice.

The following exercise is adapted from materials developed for the U.S. Department of Labor "Jobs for Progress" project. It is a checklist of activities related to exploring nontraditional careers. Its purpose is to help you determine your readiness to choose between a traditional or nontraditional career. Place a checkmark in the column that most exactly describes the time you have spent on each activity during the past six months.

	Never	Once	Several Times	Often
1. Thought about a career in a nontraditional occupation	_____	____	_____	_____
2. Thought about the advantages of a nontraditional career	_____	____	_____	_____
3. Thought about the disadvantages of a nontraditional career	_____	____	_____	_____
4. Talked about nontraditional jobs with relatives or friends	_____	____	_____	_____
5. Read materials about nontraditional jobs	_____	____	_____	_____
6. Thought about the sex or racial biases that may be related to nontraditional jobs	_____	____	_____	_____
7. Thought about how a nontraditional career might affect my lifestyle (e.g., friends, family life, free time)	_____	____	_____	_____
8. Thought about nontraditional careers I would enjoy the most	_____	____	_____	_____
9. Thought about nontraditional careers I would dislike the most	_____	____	_____	_____
10. Thought about how well a nontraditional career would match my interests and abilities	_____	____	_____	_____

	Never	Once	Several Times	Often
11. Talked about nontraditional jobs with employment or vocational counselors	____	____	____	____
12. Talked about nontraditional jobs with persons working in that career field	____	____	____	____
13. Observed activities related to nontraditional jobs	____	____	____	____
14. Learned the employment demand in nontraditional careers	____	____	____	____
15. Learned the chances for advancement or promotion in nontraditional careers	____	____	____	____
16. Thought about how nontraditional careers might change in the next ten years	____	____	____	____
17. Tried out activities related to nontraditional jobs	____	____	____	____
18. Thought about how to prepare for a nontraditional career	____	____	____	____
19. Learned how much training is needed to enter a nontraditional career	____	____	____	____
20. Learned what academic background is needed to enter nontraditional training	____	____	____	____
21. Thought about how my high school program is/was related to nontraditional careers	____	____	____	____
22. Talked about nontraditional jobs with teachers of nontraditional courses	____	____	____	____
23. Learned what licenses or certifications are required for nontraditional jobs and how to obtain them	____	____	____	____
		Total ____	Total ____	Total ____

When you have completed the exercise, count the number of responses falling in either the "Never" or "Once" columns. Enter the total in the space at the bottom of the page between these two columns. Then count the number of responses falling in either the "Once" or "Several Times" column and enter it in the space between those two columns. Finally, count the number of responses falling in either the "Several Times" or "Often" columns and enter it in the space below those two columns.

If your answer to ten or more of the activities is "Never" or "Once," you are just beginning your exploration of nontraditional careers. You probably will not be familiar with much of the information in this guide. It will provide you a solid information base on which to build. It will also offer suggestions to help you make a valid career decision.

If you checked ten or more of the activities in the "Once" or "Several Times" columns, you are ready to do some serious exploration of nontraditional jobs. You may already be aware of some of the information in this book. If so, you may wish to review it and go on to those sections which offer something new. Chapters 4 and 5 will probably be the most helpful to you.

If you checked fifteen or more of the activities in the "Several Times" or "Often" columns, you are probably close to a career decision. A review of this guide may help you to make the final choice between traditional or nontraditional work. If you do choose nontraditional work, it may help you to narrow your specific job interests. If you do not choose nontraditional work, you will know that your choice was thoughtful and informed.

As you may have already discovered, vocational exploration can be time-consuming, sometimes worrisome, but almost always exciting. This manual was written for those of you who have set out on your career search. Whether you are beginning, in the middle of, or ending that search, you are welcomed aboard and invited to "READ ON!"

MYTHS REGARDING WOMEN IN NONTRADITIONAL OCCUPATIONS

You have decided to go into a certain occupation or occupational field. Normally all you have to do is find out where to get the training you need and where to get the job. Getting into a nontraditional career is the same in principle, but a bit different in practice. Nontraditional jobs for women have certain myths surrounding them which traditional jobs do not have.

If you have looked into nontraditional work to any extent, you probably have heard "This is a man's job--women can't do men's work." Or "When you put a female in with all those men, you're only asking for trouble." But arguments such as these and many like them are not based on reality. They are myths--problems which exist only in the minds of employers, male workers, and sometimes women themselves. Myths or not, however, they can present real difficulties to the women who need to get trained and hired. It is important, therefore, that you know what they are and how to answer them.

SEX STEREOTYPING

A myth which presents one of the greatest problems is "sex stereotyping" --the notion that certain jobs were for men only and others were for women only. Many men and women still tend to think that way. Men are machinists and plumbers; women are nurses and secretaries. If the job requires average or above average physical strength it has probably been labeled a man's job. If it means getting dirty, it has probably been labeled a man's job. It has been important to many men and women that women be protected from hard physical labor.

However, both men and women tended to overlook the fact that women are not really spared physical labor. Cleaning house, carting children and groceries from the market, being a farmwife, etc. takes a good deal of physical effort. Deborah P. is now a teamster who drives a cement-mixer. "I worked harder cooking in a small restaurant than driving the truck. Taking care of a house and kids is harder still. And last year I made three times more than I did before--I made $29,000!"

Nevertheless, marriage and homemaking was--and often still is--viewed as woman's main goal in life. Her training and education looked toward this end. Linda O. notes that "girls weren't allowed in shop when I was in high school. We took home economics, not shop. That was a forbidden thing." Over the years the male and female labels stuck. The myth came to be regarded as fact. And if it were not for the low pay of the "female" jobs, women would probably still be accepting the labels today and working only in traditional roles.

Many women continue to work in traditional jobs, and a lot of them enjoy their work and feel no need to change careers. But some of these "pink collar" workers would like to get a nontraditional job. They may even have tried. And when they tried, they may have met with sex stereotyping. Chances are they didn't know how to respond to it.

How do you answer the "man's work--woman's work" myth? Certainly you have a right to choose whatever type of job or job training you want. But a response based on economics is usually more convincing than one based on equal rights. It's hard to argue with a simple, straightforward statement such as "I have to make a living too," or "The dentist doesn't give me a discount because I'm a woman." When men ask her why she wants to do "hard work like that" Deirdre M., an electrician apprentice, looks them in the eye and responds: "I work for the pay and the respect--just like you." Linda O., a truck driver, finds that "men think these jobs are only for men. But I tell them I have a family to support, too--it really makes them think."

Anyone--employer, instructor, or co-worker--can understand and identify with financial needs. As one male said to a hostile co-worker about the new woman in the plant: "Hey, man, don't hassle the lady. She's no Women's Libber--she's just trying to earn a living!"

MYTH THAT WOMEN LACK STRENGTH FOR "MEN'S WORK"

Employers may exaggerate the strength needed for the job, too. Linda O. stresses that "you do need to know the physical requirements beforehand. But you don't have to be Superman to do most of these jobs." It is important to remember that most of the 35,000 occupations in today's work force have no special strength requirements.

Scientific and engineering technician jobs, for example, require little physical strength. Jobs in the industrial and building trades probably require the greatest physical strength. Many plants and employers, however, have special equipment available for the very heavy jobs. But even when they don't, many women find they can adjust to the physical demands of their jobs.

Deirdre M., for example, says that she now has "a lot more confidence in my physical strength and my ability to develop skills. I took a physical fitness course to develop my upper body strength. That was very important." Miriam W., a pipe fitter, found the work "physically demanding, but the paycheck was worth it." Linda P. an electronics service technician, notes that "we have to lift motors, generators, TV's. I need help carrying TV's. I've joined a health spa to work out. If the job is strenuous, physical fitness training is essential. But even men need help lifting heavy TV's."

Joan C., a machinist, discovered a surprising side benefit in her new physical fitness. "I like the fact that my body is stronger....The work has built up my upper torso muscles. I like knowing I can handle myself in situations I didn't expect to, such as the factory situation....It gave me confidence in other areas of my life too--I'm a lot more assertive in how I walk down the street at night. Men walk like they're tough--I've learned how to do this. And I feel more of a woman now."

Women in the more physical jobs all stress the importance of physical fitness. They agree, however, that physical requirements need not be a real barrier, and they urge other women to "hang in." Sharon C., a telephone lineperson, explained that she had no special help with the physical requirements of her job. "So I ached a lot at first. When I couldn't lift heavy weights, I got frustrated. But as time went on my muscles developed, and it's a lot easier now."

Some employers may tell you the job's too hard for you. You can point out that many traditional jobs are just as physically demanding as many nontraditional jobs. Waitress, LPN, and household worker are examples. Assure such employers that you're in good physical condition and not afraid of hard work. But be sure you are in shape before you start or you can hurt yourself.

If it's really tough at first--and it may be--keep in mind that you'll get used to it. After all, you got used to carrying twenty pound bags of groceries in each arm. When she felt discouraged, Rita S., an operating engineer apprentice, focused on the rewards. "Twenty or thirty years from now, I'll be able to say--'See that bridge? I had a hand in that.' That's neat!..."

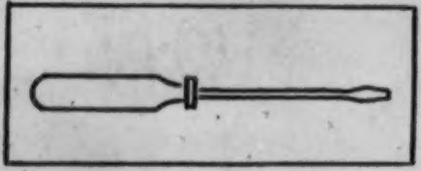
MYTH THAT WOMEN LACK TEMPERAMENT FOR "MEN'S WORK"

Besides exaggerating the physical requirements of the job, some employers may feel that women don't have the "temperament" for a "man's job." By this they generally mean, "Women don't like to get dirty," or "Women are afraid of machines." Or they think that women in industrial or building trades won't be able to adjust to factory settings and construction sites where men may sweat, swear and strip to the waist.

First of all, it should be remembered that not all jobs are dirty, nor do all jobs involve noisy and/or greasy equipment. Most jobs in the technologies are clean jobs. Equipment may be complex and delicate, but it is seldom the large, dirty equipment that may be found in some industries. And even when it is, most women adjust to it just as men do.

Dorothy M., a tool and die maker, told us she was afraid of the machines --but she got used to them. Lynn W., a construction laborer, confesses that when she held a jackhammer, "at first I thought it would run away with me! It didn't though, and I did what I had to do." Rita S., the opeating engineer apprentice who likes to build bridges, gets really carried away on the subject of machines. "To move earth, big I-beams for a person only five feet tall made me feel so powerful! You can't beat the money and it's great working outdoors--the machines fascinate me!"

And what about women not liking to get dirty? For Ivora W., a construction worker, dirt is a fact of life. "If you worry about being clean, forget it." But it doesn't bother her. Barbara J., an auto mechanic, doesn't mind the dirt and the grease either. The new grease cleaners now on the market help also. On the other hand, "if you don't like to get very dirty" she says, "go into some cleaner field." With some 35,000 occupations to choose from, you can find many that are "clean" jobs. And as Deirdre M., an electrician apprentice points out, "No, I don't like to get dirty. I doubt that most men do, either. So when I come home, I just wash it off."



But what about the factories and construction sites being bad environments for women? Nurses see men's bodies and cocktail waitresses hear bad language. So do waitresses in the truckstops. Janie C., a drafter, worked in a factory that made putty guns. She discovered that "at work, the men were more uncomfortable than I was. They worried about what to call me if not a 'draftsman.' They took their nudie pictures down and stopped telling dirty jokes. The men weren't hostile--just perplexed. They had to--or felt they had to--clean up their act." And Catherine F., an electrician, just laughed. "No--no change. I haven't picked up the swear words."

How to answer the employer? You might smile pleasantly and say, "It won't bother me if it won't bother you...."

MYTH THAT WOMEN ON THE WORKSITE CAUSE DISRUPTIVE SEXUAL RELATIONSHIPS

Sometimes employers are afraid the presence of women workers will distract the males on the job. They may worry that the men will get involved sexually with the women.

Some women find that men expect this and will "test" women--especially younger women. They may make passes or tell sexual jokes and generally give the women a hard time. But this happens on the office too, and employers don't show alarm at that. Deborah P., the teamster who drives a cement-mixer, feels that what ultimately happens depends a great deal on the women. "If you flaunt yourself, men will expect you're easy. But if you come across straight they'll leave you alone."

There will probably always be that initial testing, however, even in traditional jobs. But this generally stops once the men realize you are there to work and do a good job. A simple reassurance to a worried employer might be: "Look, I'm here to work, not get a man. I only want a job."

MYTH THAT WOMEN CAUSE EMPLOYERS ADDITIONAL EXPENSE

Occasionally employers will argue that they can't afford to add separate toilet facilities for women. Generally, however, the present facilities can be locked. You can simply tell the employer you won't object to taking turns with the men. If they don't already lock, you can point out that a lock really doesn't cost much. Neither does an "Occupied/Vacant" sign.

These are the myths that many men and some women will cite when you say "nontraditional job." But the bases for these myths are so weak, you can answer them with a pleasant but direct response and get on with your business--getting and keeping a nontraditional job.

3

THE REAL BARRIERS

Women already in nontraditional work will tell you again and again not to let the barriers stop you. Nevertheless, you must have a realistic understanding about what the true problems are. What are some of the things that could prevent you from succeeding in a nontraditional job or even from choosing a nontraditional career? And what are some of the solutions to these problems? This section deals with both.

INTERNAL BARRIERS

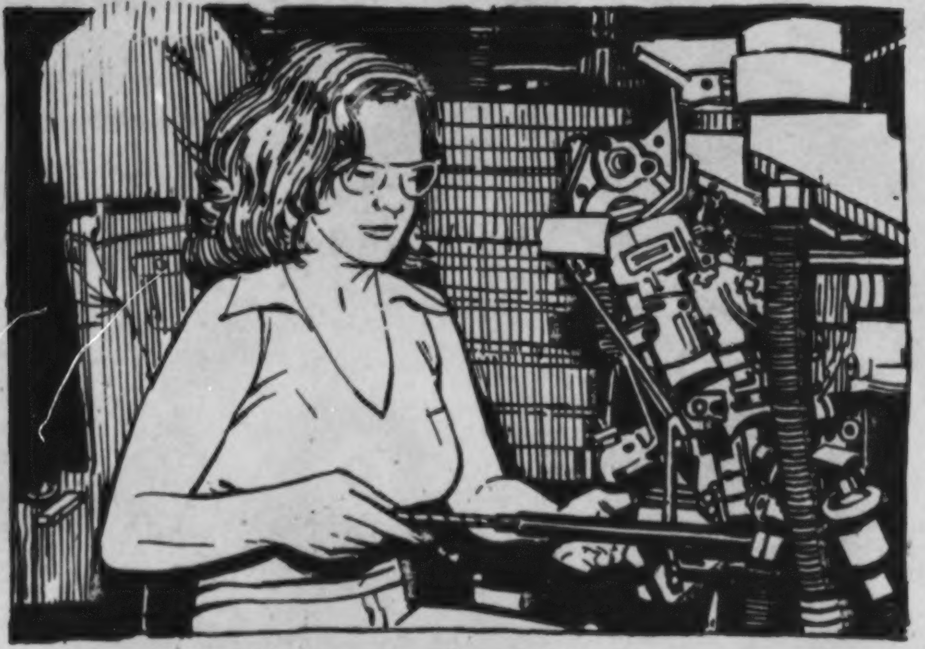
Internal barriers are real barriers that come from within yourself rather than the employer or others. They may be ideas that come only from yourself such as, "I'm just not smart enough to go back to school." Or they may be ideas which you share with employers, such as "This is a man's job" or "I'm not strong enough to do that." Sex stereotyping, lack of confidence, age, and concern for femininity are particularly troublesome internal barriers.

Sex Stereotyping

Basically, sex stereotyping is a myth that is unfounded in reality. But because it is so frequently accepted and so firmly believed in by women as well as men, it can also be a very real barrier. A recent study by Rj Associates for the U.S. Department of Education showed that girls who chose to go into nontraditional high school vocational courses generally did so with the encouragement of a male--not female--vocational teacher. It was also found that girls in the same schools were more influenced to take nontraditional courses by male counselors than by female counselors. And it was found that the mothers of these girls--who influenced their daughters' career choices more than fathers--generally encouraged the girls toward traditional careers.

In addition, some women working in nontraditional jobs reported more negative responses from women in their families than from their co-workers. Linda O., the truck driver, found her father was "all for it--Dad always wanted a son and didn't have one. But Mom was skeptical." That was only initially, however, and "now she's behind me, too." Susan F., an electrician, had no problem with the men in her family either. But "my mother and a few female relatives were apprehensive. They thought it would be too hard for me."

Family responses to women entering nontraditional work will be discussed in more detail later; it is important here to see the part that women themselves often play in sex stereotyping. In more recent years, many women and men have changed their views toward traditional work of both sexes. Women in the factories and the science labs and the construction sites all have proved that women can do "men's jobs." But if you don't believe you can do it--you can't.



Lack of Self-Confidence

Many women find it hard really to believe in their own physical, mental, and emotional abilities. This suggests another of the internal barriers --a lack of self-confidence. Even the most secure women have self-doubts at some time. Younger women who haven't "proved" themselves in a traditional career may not be sure they can handle a nontraditional one.

If you are older, you may be one of thousands of women who have been through a divorce, separation, or are widowed. Nontraditional work may be what you need because it pays enough to support both yourself and your family. But you may be feeling low and a little overwhelmed by the thought of starting all over at your age. It may be hard to see yourself succeeding in a nontraditional job. There may appear to be too many obstacles.

If you feel that nontraditional work might be good for you but you just aren't sure, finish this book. Then head for the nearest women's nontraditional program, women's counseling center, or support program. If you are older and divorced, widowed, or separated, you can also contact a displaced homemaker program if your community has one.

Most nontraditional and women's programs offer group and individual counseling. This will help you explore your feelings about both traditional and nontraditional work. Orientation classes are also offered in some programs. They present the pros and cons of your career options and help you come to a career decision. Some programs may arrange field trips and give you a chance to actually use different tools and try different nontraditional tasks.

At the least, such programs will help you explore your interests, aptitudes and skills. They will help you build confidence so that you can make a valid career decision. To locate nontraditional and women's programs in your community, check with State Employment/Job Service Centers, junior and community colleges, and technical and vocational schools. Programs are sometimes listed in the Yellow Pages and advertised in the newspapers as well. In addition to special programs, many schools have counselors, career centers, and/or student service programs which should help you. There are also a wide range of self-help books available at the public library. Just ask a librarian for books on confidence-building and career decision-making.

Age

"You can't teach an old dog new tricks" is a well-known, often-accepted saying. And yet the same women who believe they are too old to train in a new career--or even a first one--are often the very ones who need training the most.

Many women in their late thirties and above are widowed, divorced, or separated. Others may be experiencing the "empty nest syndrome": the kids are grown up and--for the first time in many years--they are free to take outside jobs. It may not even be a matter of choice. Inflation may be eating into their husbands' incomes and family savings. They will have to work outside the home in order to maintain their standard of living or save for retirement. Single women and many married women may have outside jobs already, but the pay may be too low to really meet their financial needs.

Thus, many women have thought about training or re-training. They would like to begin a career or make a career change. For these women age can be an external barrier. Many apprenticeship programs, for example, have upper age limits. Although age discrimination in hiring practices is illegal, it is difficult to enforce the law. Also, it probably will be some time--if ever--before apprenticeships are affected.

Often, however, concern about age is an internal thing. Many women are discouraged by what they believe to be an age barrier. They may feel overwhelmed by the thought of months of training. They wonder if they are too old to learn and if they are physically able to handle the work.

Such concerns can be eased by a visit to an adult education or continuing education center. Most junior or community colleges and vocational-technical schools and high schools recognize that there are many adults whose skills are rusty or who have never had formal training. They offer special services and programs for these individuals. Many of the programs --especially those offered by public institutions--are free or low-cost.

If you are older and widowed, divorced, or separated, you may also qualify for displaced homemaker programs. These programs are offered by CETA and some vocational schools or junior or community colleges. Some private community agencies give special assistance to displaced homemakers as well.

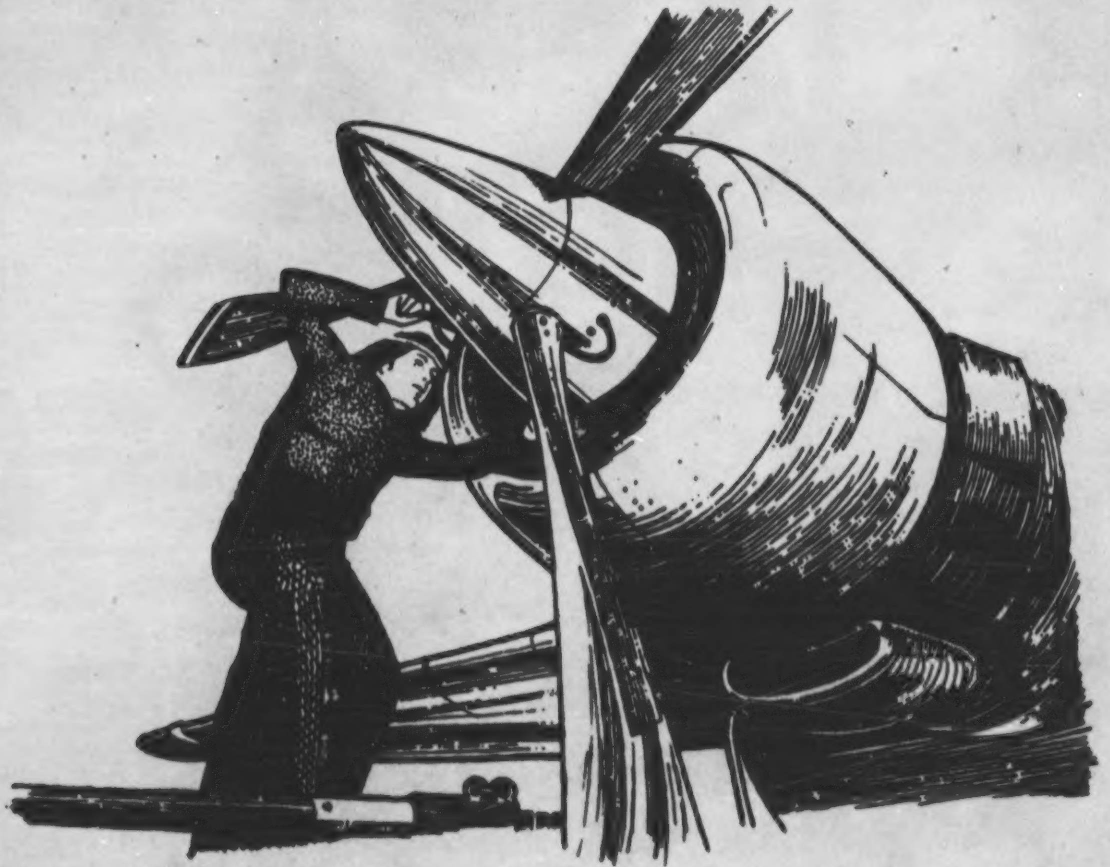
All of these programs provide information and counseling to adult women who are interested in furthering their education and training. They can tell you which jobs do not require special physical strength or stamina. They will help you decide what jobs are best suited to your interests, abilities, and experience. They will reassure you that your age will not prevent you from learning and that you will not be out of place in their classes. You will meet other women at these centers who may have the same concerns as you. You will discover that many men and women enrolled in school are older than you. Some will even be retired. You may find studying and getting back "into the swing" difficult at first. Counselors will be available, however, to help you with any problems. Stated simply--you will not be alone.

Once you are trained, teachers and/or school placement personnel will help you get a job and deal with employers who might be concerned about age. If there is a shortage of workers in your field, you will have little or no difficulty because of your age. Even when there is no shortage, employers want not only well-trained workers, but dependable workers. Maturity, dependability, and motivation are your strong points. Many employers recognize this and some may even prefer older workers. If a field is overcrowded, however, age could, certainly, be a problem. It would be best to avoid such fields--but this is true for younger workers as well.

Concern for Femininity

Some women considering a nontraditional career may be concerned about their femininity. Others--even other women--may tell you that only "masculine" women do such "unfeminine" work. This is a myth, but the concern is real. Does nontraditional work, in fact, make you less of a woman? Does it even necessarily make you feel unfeminine?

Such questions can be best answered by women actually working at nontraditional jobs. They are unanimous in their responses. An electrician apprentice declares: "I know I'm Deirdre M.--my femininity isn't threatened. I know what's under all those layers of dirt and thermal underwear." Pat B., avionics trainee, believes "a lady is a lady--it didn't change me any. Some women try to be more feminine on the job to attract men" she observes. Others become masculine to fit in, to be comfortable with men--but they feel feminine. When a man claims a woman is really trying to be a man, that's dumb--it's just to hold you back. It's not being a man to want to earn a better living. Don't you believe that." Deborah P., the teamster, agrees: "No, no difference in my sense of femininity. I feel really good about myself."



Other Internal Barriers

But even if you're the most feminine, confident woman in the world, there may be other things keeping you from going into nontraditional work. It may be that you are just not ready to make a career choice. You may need to know a lot more about the work-world and about specific kinds of work before you can or should make such an important choice. Or the barrier may be more subtle--"What if I can't hack it? What if I fail?" An even greater concern, perhaps, may be the consequences of succeeding. "What if I do make it? What will that do to my family? My friends? To me?"

These are deeper issues you may need to deal with. Many women find that there is no real change in lifestyle at all. Others find that just having a job can change lifestyles and relationships. Your success in what has been traditionally regarded as a "man's job" may be threatening to others. Your success at any job can be a threat for some, as can the independence you may gain, both emotional and financial. Your family may need to make adjustments. Some of your friends may find it difficult to accept your decision.

Whatever the effects, the concern may still be there. Many women find it helpful to "talk through" their concerns not only with their families, but with a counselor. Counselors can help you prepare for the possibilities. They can explore with you your feelings about the changes that a nontraditional career may cause. They can help you deal with problems if they arise and offer support and guidance. The same programs mentioned on page 17 provide--or can refer you--to such counseling.

EXTERNAL BARRIERS

We have already talked about the myths surrounding women in nontraditional jobs and the answers to them. We have seen how some of those myths become real barriers when they come from within ourselves (internal). But what about the other ones which are not myths and do not come from within ourselves? What about the ones created by employers, co-workers, inflation, or simply "circumstances?"

These are external barriers. They are not myths, but cold, hard reality. They may involve one or several problems. Because they come from outside ourselves, we have less control over them. This section discusses some of the areas which may present problems for women considering nontraditional work. It also suggests some ways of dealing with them.

Finances

You may be fairly certain that you want to try nontraditional work. But perhaps you are single, widowed, separated, or divorced. You have prepared a budget and, after cutting expenses as much as possible, there is little left over for training. Even if you're married, your husband may be unemployed or it may take every penny of his income to pay the rent and the monthly bills. Perhaps you were a sales clerk before you were married. It might be easy to go out and get another sales job. Or you've already trained as an LPN and there are plenty of jobs available. Does that mean you should forget nontraditional training? ABSOLUTELY NOT!

There are a number of sources of financial assistance available for training. Financial aid programs you should look into are:

- o Basic Education Opportunity Grants (BEOG)
- o National Direct Student Loans
- o Supplemental Education Opportunity Grants (SEOG)
- o College Work-Study
- o Guaranteed Student Loans
- o School Work-Study or Cooperative Education Programs

A few of these programs, such as the BEOG and SEOG offer grants which do not have to be repaid. They only require that your income be below a certain level.

In addition to the federal programs, there may also be county and state financial aid programs as well as scholarships available through some organizations. The financial aid office of any postsecondary school can give you information and application forms. You may want to have someone help you fill out the forms while you're there or set up an appointment with a financial aid counselor

A warning about loans, however: READ ALL LOAN AGREEMENTS OR CONTRACTS CAREFULLY. Be sure you understand the exact terms of repayment. If you are taking a large tuition loan, for example, when do payments begin? How much, exactly, will the payments be? Will the school help you find a job? If you decide you don't like the course, will your money, or part of it, be refunded? If you drop out of a program, is the loan due immediately?

You have a right to answers to all of these questions. Federal "Truth in Lending" laws require lenders to make clear the terms of their loans. If the terms are not clear after reading loan agreements carefully and asking questions, do not sign. Even when you feel you understand the agreement, it is often helpful to have a friend or relative read it and see if he/she understands it the same way you do. Remember, you cannot be too cautious when signing financial agreements.

In addition to loan and grant programs, there are a number of federally funded training programs in each state. CETA programs, for example, are available to low-income individuals who have no outside source of support. These programs generally pay you minimum wage while you are actually attending school and may help to subsidize a job or job training in private industry.

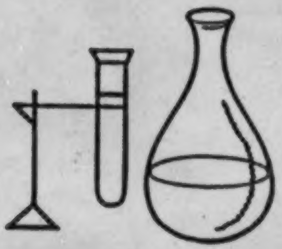
Specialized training programs for which you may qualify include displaced homemaker programs and nontraditional programs for women. The standards used to determine who is eligible for these programs vary, but the programs are generally free or low-cost to low-income women. Some are open to all women and fees are based on your ability to pay. Many vocational and area technical schools charge small fees and are open to county and/or area residents. Some training programs even include reimbursement for day care for pre-school children. Many programs and schools will help you get part-time jobs to give you an income while you are training. "Open-entrance--open exit" programs let you start and finish your program at your own pace, often cutting training time in half if you can complete the work quickly.

In addition to school financial aid offices, many community agencies can direct you to financial help. These may include local information and referral services, women's centers, or human resources centers.

Perhaps it is impossible, however, for you to take any lengthy training. You may still enter a nontraditional field by finding an employer who trains workers without previous training or experience. Occasionally, but not frequently, an employer will do this when skilled workers are hard to get. Check with a women's center or State Employment/Job Service office for help in identifying such employers.

Some women use traditional jobs as a means of observing and getting into nontraditional ones. They take lower-paying entry-level traditional jobs or stay in the ones they already have. They can then afford to take refresher courses or nontraditional training at night. Or they may save their money until they can afford full-time training. Large employers sometimes pay for training as a part of their benefits package.

Others observe nontraditional jobs as full-time or temporary office workers. They familiarize themselves with nontraditional job duties to get an idea of what the job is actually like. Still others upgrade themselves through company or union-sponsored training programs. They keep their traditional jobs while they train. Some employers make it a policy to select workers for upgrading from within their companies. This way, they can better judge the employee's motivation, skills, and suitability to the new job. Such upgrading often involves jobs which are nontraditional for women.



Besides employer training programs, there are some apprenticeships, which pay as you learn. Check on availability and age restrictions first, however, as apprenticeships are limited in both respects. If apprenticeships are available in a field you are interested in, it is important that you get help in preparing for the exams and interviews. You may need some tutoring in math and the spatial parts of the exam. You must also be prepared for the tough interview before the Apprenticeship Committee. A minority recruitment training program may be helpful if your community has one. Services are generally free to everyone, minority or not. A women's center or your county, city, or state Commission on the Status of Women should be able to direct you to help in this area.

Financial aid can be difficult--but not impossible--to get. It may mean a few months of hard work and financial struggle. But you will have a high-paying nontraditional job with good advancement opportunities when you finish.

Child Care

Finding and paying for adequate child care is a problem for many women who work. Child care can cut deeply into a good paycheck. Paying for adequate child care when you're in school with no salary at all may seem impossible. In some cases it is. Many women work it out with relatives and friends; others get help from community services. CETA training programs, for example, generally pay you an extra amount for child care. There are also child care agencies which have sliding fee scales for low-income women. Women's centers may help you form your own co-op with other women who also need daycare. You won't all be attending class at the same time and may be able to exchange baby-sitting services.

State welfare offices and local referral services can give you information regarding child care agencies in your community. Churches and religious organizations often operate centers themselves or can refer you to quality centers. It is important that you know something about the quality of the care provided before selecting a daycare center.

Vocational/Academic Preparation

A major problem women most frequently run into once they begin nontraditional training involves their vocational and/or academic preparation. They quickly learn the importance of a solid background and skills in math, science and the use of tools. Renee W. discovered this as a carpenter's apprentice. She found that "the hardest part of my training was learning to use the tools, not to break my fingernails and not to hit myself."

Women are often at a disadvantage when it comes to tools and nontraditional vocational preparation. Many boys have grown up helping their fathers in the shop and repairing things around the house. They may have spent hours working on old cars, setting up stereo and ham radio equipment, and building airplane and ship models. They may have been involved in a lot of other mechanical and technical activities which parents and society consider appropriate for boys--but not for girls. All of these things are ideal preparation for the crafts and trades.

But when a woman sets out to be an air-conditioning mechanic, she may not know a pipe cutter from a metal snip. And there's the question of how to hold them and what to do with them. Then, too, in the past, high school girls were not usually encouraged to "take all the math and science you can get." Calculus, trigonometry, chemistry, physics--many girls didn't give them a second thought. And counselors and teachers often didn't tell them they should. Some still don't. Many girls and women still think math is too hard, that they won't be able to do it. So they leave it to the boys.

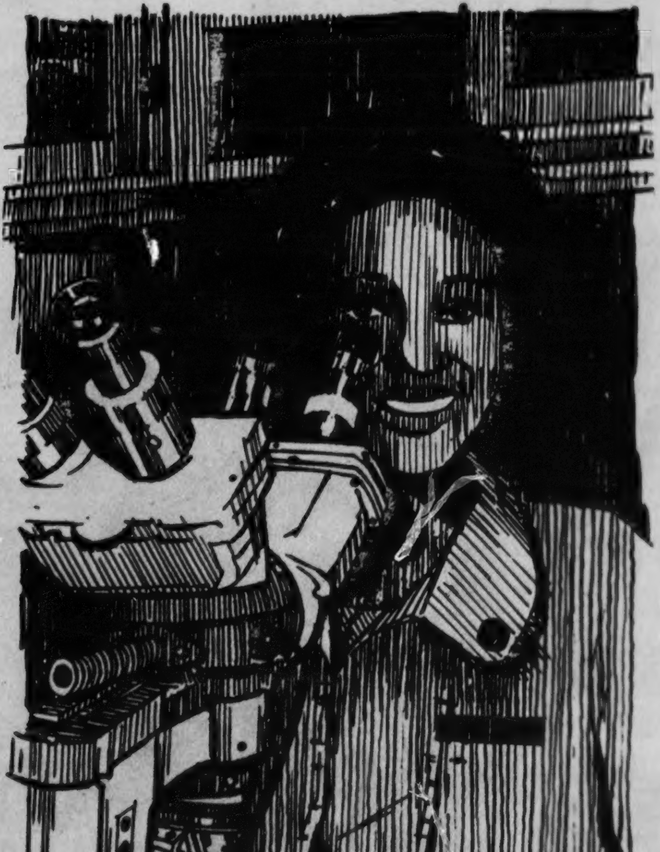
When you begin nontraditional training you may need some extra courses, especially in math, to bring your preparation level up. You may need a high school diploma before you can get into a particular program. If so, you will need to attend General Educational Development (GED) classes and pass an exam to get an equivalency diploma. Or you may just need some basic math and science courses. You can get these through learning-development or remedial centers at junior or community colleges, vocational or technical schools, adult education programs, or evening high schools. Counselors can recommend and help you get the courses you may need.

In some areas, there are short-term pre-apprenticeship programs, too. These will give you some basic training right on the worksite. You can then "get your feet wet" and see how you like it before committing yourself to a training program.

It may even be possible to take developmental and/or refresher courses at the same time you take courses toward your program. The pressure and the added workload can be tough, however. Jennifer B., a drafter, warns about being "careful of starting out too advanced. Don't let advisors push you to go through courses you're not prepared for. Start out with algebra, not trigonometry. Start with basic courses that will help you later on."

Tough as it may sound--and it may be tough--there is a bright spot. Some vocational instructors report that many of the female students learn and understand the "book material" of male-oriented courses better than the males--and get better grades too. Some teachers also report, as might be expected, that males often do better in the "doing" part of the courses--in the application of the "book learning." Remember that really understanding how something should be done, and how it works is more important in the long run than being immediately comfortable with the tools you do it with. If you understand the theory well, time and practice will make you more efficient in the application. Perhaps the most important thing to remember about nontraditional training is not to be afraid to ask questions. Your teacher needs to know when you don't understand something. It may be that the material isn't clear or that you don't have the background to grasp it without further explanation. Whichever the case, you may be surprised to find that some of your male classmates were probably wondering the same thing!

It won't be easy to solve problems. You will need to be resourceful, creative, and persistent in finding solutions. Nontraditional programs, women's programs and counseling centers can help you and offer some good ideas. And, more than likely, you can do the rest yourself.



Social Attitudes

When Rosalyn S. became a mechanic, she joined her husband, father and brother in the company. She and her husband work together. Cheryl W., a carpenter, says her children are "very enthusiastic--they like it. But I made them enthusiastic by making them think it is a very positive thing--which I feel it is." Catherine F., the electrician, was afraid to tell her brothers at first. "But they were receptive--they gave me my father's tool case and told me I was carrying on the family tradition. My father, three brothers and I all belong to the same union now." But Catherine never saw it as "nontraditional" to begin with.

Not all of the stories are this heartwarming and simple. For some women, the opposition is so great it takes real courage. When Patricia H., went into plumbing, heating and air-conditioning "My family thought I was crazy." Linda O., the truck driver whose father had always wanted a son, had no problem with her father. Her mother, however, was not so sure about it. Joan C., machinist, reports that her husband "loves it;" that he didn't feel the burden of supporting the family as much. But Joan also cautions that "for some women it's very threatening in relationships. Many husbands are supportive. For women whose husbands aren't, they leave their jobs here and become someone else at home."

Family, friends and neighbors--all share in the "man's work--woman's work" myths. No matter how much they care about you, they may not understand why you want to do what they see as a "man's job." And even if they understand, they may not be able to get over the emotional part of the myth--they may not be able to even "approve," to say nothing of giving you their full and wholehearted support.

And yet, in taking such a step, you may want and need that approval and support. It will be important to you just to survive the pressure. You need to know that someone agrees with you wholeheartedly, that someone believes you can do it, that someone really wants to see you succeed. You may feel let down, disappointed, and even angry if others close to you can't "handle" what you're doing. On the other hand, you may find that some or even most of them accept it very well. They may provide just the kind of support you want and need. In that case--terrific! It is probably best, however, to be prepared for what most women run into: mixed reactions--some good, some bad, and some indifferent.

Nevertheless, keep in mind the likelihood that as more and more women enter nontraditional jobs the social shock will wear off. In time it will be easier for women and their families. And where women do lack support from their families, nontraditional programs, women's programs, and counseling centers can provide it.

Joan C. even found it on the job. "Women in my factory develop their own support network--we have parties together, celebrate promotions, etc." Women's centers and nontraditional programs often encourage women just entering the field to join such support groups. They can air their problems and get encouragement when the going is rough. They can share tips on how to handle different problems when they arise. You can find such groups at counseling and training centers, at work, or in your classes. If there are no support groups already established, many women create their own. Regardless of where you find them or who initiates them, a "support network" will be a big help in overcoming the social pressures you may run into.

Harassment, Isolation, and Discrimination

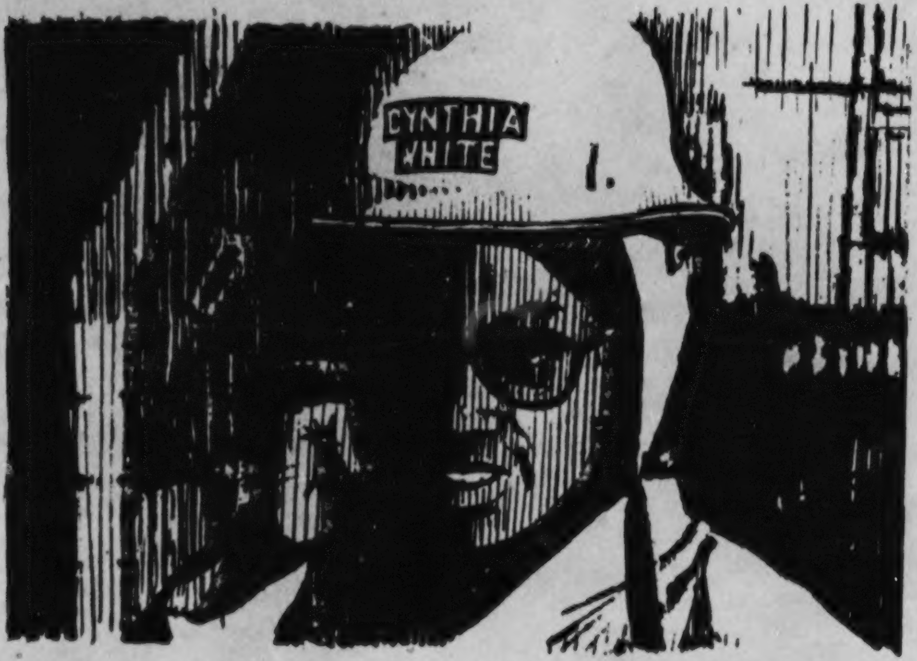
There can be still other problems caused by negative social attitudes. You may be isolated on the job to an extent, simply by the fact that you are a woman. You may be the only woman, or one of only a few women on the job. The isolation will be increased if the men in your line of work don't understand your need and/or desire for nontraditional work. They may feel threatened by you, especially if you sound strongly feminist.

Knowing what to expect and preparing yourself for it before going on the job, however, is sometimes enough to prevent problems. You should know, for example that men in the industrial, mechanical, and construction industries may be more difficult to deal with than men in the scientific, engineering, and technical fields. Resentment may be more openly expressed by men in the more "masculine" crafts and trades.

On the other hand, you may be pleasantly surprised and meet with only a kind of "freshman hazing." Many new male workers meet with this as well. Whatever actually happens, however, it's wise to be prepared for some resistance. When you walk onto the worksite for the first time, you will need confidence, a lot of respect for yourself, and a strong belief in and desire to do what you're doing.

The women already in nontraditional jobs can best describe the wide range of responses you can expect from male co-workers. Many women in the technologies report little or no discrimination or harassment. Nevertheless, Patricia B., the air-conditioning technician, found that although "no one says 'get out of here,' the snickers behind the hands made me feel foolish." Susan F., the electrician, found more hostility in the construction field. "I had an idea that I wasn't going to be accepted as just another worker. But I was really surprised about the way the men acted towards me--it was worse than I thought it would be."

On the other hand, Rita S., the operating engineer, was delighted with her reception: "I went into it expecting harassment. But it was unbelievable the respect I've been getting from the men--it's more than I ever got as an office worker."



In addition to winning your co-workers over, you may also have to win your supervisors over. Reactions from them can vary as much as your co-workers' reactions. They can range from acceptance and support to harassment and/or outright discrimination.

Miriam W., a pipe fitter, found that "my foreman felt any woman in that work was only there to 'hustle.' But he finally accepted me and changed a lot of minds. It still took longer for me to get raises than it did the men, though." Anna T., a metal craft worker, had a similar experience: "My supervisor wasn't geared to helping, or taking a special interest in women's needs. He didn't give me the experience I needed on the job, the opportunities."

Charmaine P., an electrician's apprentice, met with more than a lack of interest: "Everybody has some setbacks--you just have to find another way to handle the problem. It was real tough for me. Everyone said I was doing a swell job--and even I knew I was. But the foreman put 'Not doing her share of work' on my record, just because he didn't want a woman on the job. Man, that was tough to take! I wanted to quit, then I talked to myself...and I'm going all the way to the finish line."

Bonnie S., who works for a paper company, found a completely different attitude with her supervisors. "Really good things happened to me. I had understanding supervisors who answered my questions. It's very important to have good supervisors."

The range of reactions to women in nontraditional jobs, then, can be great. Cheryl W., the carpenter, sums it all up philosophically. "The worst of it is getting the men to give you a chance to learn. There is a political struggle--you have to find a common ground and establish it with the men. You realize that you're representing all women, and you have to fight your own prejudices. Otherwise you may jeopardize other women coming into the trades. But believe you can do it and you can."

Overcoming Harassment, Isolation, and Discrimination

Clearly there is no way to predict what your experience will be when you apply for or accept a nontraditional job. Ultimately, your acceptance will depend a great deal on a combination of things: the job, the employer, the particular group of men you are working with, and your own skills, attitude and approach. Although it may seem slight at times, you do have a degree of choice in all of these items.

As noted at the beginning of this section, the occupational field you select may be related to the degree and kind of harassment you may encounter. If you are certain that you cannot or do not wish to deal with the possibility of harassment and/or isolation or discrimination, you can choose your occupation from the more "neutral" career fields. These include the engineering and science technologies and the better-paying jobs in the health field.

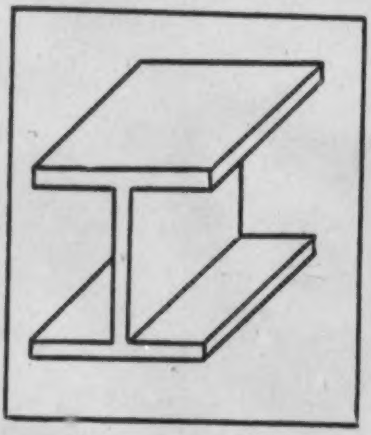
Even then, however, you may want to ask some questions before you apply for a job. You might find out, for example, whether a particular employer has other women in nontraditional jobs and how satisfied those women are with their employer and co-workers. Your school placement office, or local State Employment/Job Service representative should be able to give you such information before you submit your application or go for an interview. Other working women may also know the "reputations" of local employers. You can then place your applications where you know they will be best received.

Even if you know a particular employer will treat you fairly, you still have no guarantee of how fair your co-workers and supervisors will be. If the employer has made it clear that he/she is serious about protecting women from harassment or discrimination, supervisors are likely to follow suit. Co-workers, however, cannot be controlled so easily. Some jobs require you to move to different job sites frequently--as in the construction trades, for example. You will then have a new supervisor and new co-workers to deal with each time you are reassigned. One group may react to you quite differently, of course, from another group.

Many women in nontraditional jobs have found that hostility and harassment can be affected to some degree by their own attitudes and competence on the job. First of all, remember that men who will harass or discriminate against women in nontraditional jobs are generally the same kind of men who will harass or discriminate against women in traditional settings. Many women are adept at handling harassment in the traditional setting. They will find that they can apply many of the same strategies in nontraditional settings.

Nevertheless, your own basic attitudes can be as important as specific strategies. Kathy L., a painter, believes "you've got to be a certain kind of woman to get into this kind of work--not militant nor manly. There will be a lot of jokes--but take it easy--laugh it off. Don't try to change 'Brotherhood' to 'Sisterhood'--don't get so uptight." Patricia B., the air-conditioning technician, notes that a lot of the joking is just "good natured teasing" and should be taken that way. Lisa T., a construction worker, just laughs. "You've got to have an open mind. A very open mind." And Catherine F., the electrician, found that "lots of them--the crew--had chauvinistic attitudes to begin with. But they saw that I was there to get ahead, and not to champion women's rights. They saw I was trying very hard to become a good electrician, and they were more receptive."

Ethel T., a semi-truck driver, found that her directness and positive approach worked wonders. "I'm honest with them. I ask for help, for instruction. I don't try to prove I know everything because I don't. Now they look after me a little; they look out for me. It was a revelation how nice they are. It's a big mistake to try to prove you're better than they are--treat them with the same respect you want yourself." Ethel's CB name with the other truckers is "Half-Pint--I only weigh 100 pounds."



Joan C., the machinist, has a similar story in a factory setting. "Women can look for support from older men five to ten years from retirement. They know we aren't going to take their jobs. They know we care that they are good machinists; they're pleased to see how well we listen. They teach us things we couldn't learn any other way." Some younger men, however, she finds, are often threatened. They are too "traditional" to be able to establish such a helping relationship with female workers. Some women, on the other hand, find the opposite to be true.

Linda O., the truck driver, relies on her competence on the job to change attitudes and stop harassment. "Don't fight back verbally," she cautions, "unless you have a terrific wit about you. Arguing won't change anything. Just ignore them and show them how well you can do your work." Linda found that "resistant men give you the toughest, dirtiest detail to make you quit. You need to make it through this, then they'll help you."

But a positive attitude and competence in your job alone is not always enough. There will be times when you will have to assert yourself verbally as well. Learning to speak up for yourself and your rights, confidently, firmly, but pleasantly, is called "assertiveness." The result of assertiveness is that you make your point while keeping the lines of communication open. Assertiveness is opposed to aggressiveness, which prompts you to fight for your rights when fighting isn't necessary. Aggressiveness cuts off communication and results in alienation.

Most women's centers and nontraditional training programs offer free courses in assertiveness training. So do many community colleges and adult education programs, but there is usually a small fee for those. Many programs also provide sessions on confidence building. This could be very valuable, especially if both confidence building and assertiveness training are given, whether separately or together.

In most cases, supervisors or co-workers will come around. But you must be a hard and competent worker with some assertiveness skills, a lot of patience, and a sense of humor. If, after all of this and a little time, you are still getting outright harassment, it's time to take legal steps. It is a fact that the actions of employers and supervisors can be influenced to an extent by law. It is important, therefore, that you learn your rights before you apply for a job.

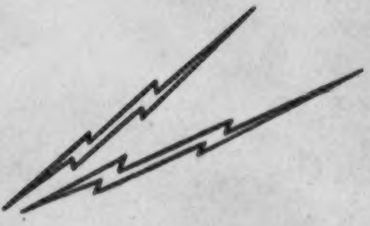
You can get information about your job rights at your public library or from several federal agencies. A very helpful publication is free from the Women's Bureau of the U.S. Department of Labor, Washington, D.C. 20210. It is called "A Working Women's Guide to Her Job Rights."

Briefly, Title VII of the Civil Rights Act of 1964 and the Equal Employment Opportunity Act of 1972 make it illegal to discriminate in hiring or firing. These laws also cover wages, fringe benefits, classifying, referring, assigning, or promoting employees, training, retraining, and apprenticeships. The 1972 law covers most employers and labor unions with 15 or more employees or members.

Additionally, Title IX of the 1972 Education Amendments prohibits sex discrimination against students and employees of education programs and activities receiving federal funds. The Education Amendments of 1976 also addresses sex bias and sex stereotyping in federally funded vocational education programs. Besides such federal laws, most states have Fair Employment Practice laws.

All of these laws make discrimination on the basis of sex illegal. It is, for example, illegal to prevent you from applying for a job for which you qualify. It is illegal to refuse you training or a job for reasons based solely on sex. It is also illegal to do anything on the job or in training that interferes with your ability to perform your work effectively--harassment, for example. Harassment, including sexual harassment, can be a serious problem and women should be aware of the legal definition and what can be done about them. The Women's Bureau has published a list of readings on sexual harassment that you should find helpful. Write them at the address given above. There is no charge.

If you feel you have been denied a job because of your sex (or race), you have the right to file a complaint with the Equal Employment Opportunity Commission. If you are being harassed or discriminated against on the job, you may place a formal or informal complaint with your supervisor. If your supervisor is unable or unwilling to settle the problem to your satisfaction, you have a right to go to the next person up the line. (If the supervisor has tried to settle the problem and failed, he/she should take it further up him/herself).



Generally this is all it takes to get some action. But if the problem continues, you may need to take further action. In this case, you should file a formal complaint through the appropriate company channels. Few companies will fail to respond to such action, but if they do, you may have to contact a civil rights lawyer. Some organizations such as the

Civil Liberties Union and local Legal Aid societies will advise you and/or take your case free of charge or for a nominal fee.

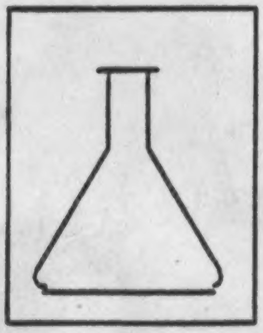
These are the legal steps you can take to protect yourself from discrimination and harassment. Regardless of your rights and the legal steps you can take, however, even simple forms of hazing can get to you if you aren't prepared. You will need to "psych yourself up" to the isolation. You may be the only--or one of a few--women on the job. You will need to be prepared for possible harassment. You can research your job rights and learn assertiveness. But you can't know the depth of your own reactions until you are in the situation.

In the end it is good to listen to teamster Deborah P. "As for the hassling, every situation is different because it involves different people. If you feel better crying, that's fine--but try to do it in private. Most important--remember that you can make it. Don't get a down attitude--you really can succeed!"

HOW EMPLOYERS AND UNIONS CAN HELP YOU OVERCOME THE BARRIERS

You should have enough information to look out for your job rights yourself. You may find, however, that some employers and unions have already taken action to protect you. Many companies are experiencing a shortage of workers in a number of areas, especially new occupations or computer-related occupations. They are eager to hire any well-trained, qualified worker. Unions refer their qualified men and women to these employers. Such employers and unions will likewise take action to prevent harassment and unfair evaluation practices. Many already have.

Besides protecting workers from harassment or discrimination, some companies have gone even further. Companies that hire women for jobs where heavy lifting (of industrial machinery, diesel engine parts, etc.) is required have provided workers with hoists and pulleys. Besides making it possible for women to do the work, they often cut down greatly on back injuries and lessen fatigue for everyone. Increased production is the result. Of the more than 35,000 occupations today, there are few in which brute strength cannot be replaced by technology. Employers need only to become aware of the adjustments they can make to help women contribute to the work force.



Many employers and unions also provide free on-site training to help upgrade workers in lower-paying and/or dead-end jobs. Others send women and minorities, as well as men, to receive off-site training. They reimburse the worker for the cost. Some unions and employers have even made it possible for female workers to get pregnancy disability pay.

These are just a few examples of how some employers and unions are helping women overcome the barriers to training and employment in nontraditional jobs. Remember, you aren't alone. There are thousands of women out there ready to welcome you aboard. Rita S., the operating engineer apprentice, says, "Tell other women 'Congratulations for choosing something out of the ordinary.' It's a great field--my whole heart is in it....So it's great to think other women are coming to join me!"

WHO NEEDS IT?

"That's fine," you may be saying. "But look at all these barriers and all these problems with women being accepted on the job or even getting a job. Isn't that reason enough to stay away from it? I mean, who needs it?"

Talking about all of the possible barriers to nontraditional work may seem frightening and almost overwhelming. But the emotional shock of some of these barriers if you run into them unprepared can be even greater. This is especially true of those involving social attitudes and discrimination. It is important, therefore, that you be aware of the problems you might run into, so that you can prepare yourself for them beforehand.

But keep in mind, also, the fact that many women entering nontraditional jobs experience few or even none of these problems. Child care, for example, may be irrelevant or easily worked out. Many women find that success early on in their first course gives them the confidence they need to complete training and succeed on the job. Others already have the confidence and energy they need. Some women gain easy acceptance of their nontraditional ventures from families and friends.

It may even be that you will never face such harassment, isolation, or discrimination on the job. Or you may experience it to such a slight degree that it doesn't pose a serious problem. Much of this will depend, as indicated earlier, on your particular occupation, employer, and coworkers. You can expect, too, that as more women enter a career field or a particular company, the barriers will lessen. The response to women in that field or company will become more and more positive. And generally, as isolation lessens, so does the resistance.

Another thing to remember when considering the possible barriers to nontraditional careers is all the help that is available to you. If you have the advantage of taking part in a nontraditional program for women, program counselors will help you head off problems that might arise. If problems do develop, counselors will be there to help you work through them.

Most women's programs are also aware of the barriers to nontraditional work and training and have counselors who can work with you. Most vocational-technical and postsecondary schools likewise have counselors you can talk with when considering a nontraditional program. They can help you throughout your program as well. Some schools, especially junior and community colleges, have women's centers which offer counseling and often provide assertiveness training and support groups.

Finally, as Chevalla O. urges: "Don't be scared of the challenge--face things head on. Don't let your sex be a handicap." Keep in mind the financial rewards, the personal satisfaction, and the rewards for your families. And don't forget the benefits to employers, as well as the nation and the economy. And remember--it *is* your right. Janie C., a drafter and an engineering student, sums it up nicely: "Don't consider these jobs as male--it's just a job you want. If you want it you can do it. The nontraditional aspect is minor. There are hassles in any job. Think about the unpleasant aspects of female jobs! There are always hassles--just different ones." And think of Charmaine P., the electrician's apprentice, who, for the first time in years could say "I love doing what I do. I dig it--I really do!"

"Who needs it?" Think about it....It may be you.

4

THINKING ABOUT IT--A LOOK AT SOME NONTRADITIONAL JOBS

It is important that you know the pros and cons of nontraditional work. The previous chapter presents the problems related to nontraditional work. At this point, however, you may be wondering about the jobs themselves. There are nontraditional careers in the technologies, in industry, in the mechanics and repair field, and in the construction trades. Even the health occupations field, which is traditionally female, has some areas which are dominated by men and which offer greater salary and advancement opportunities than the traditionally female occupations.

But what are nontraditional jobs really like? Which of the many nontraditional fields might be best for you? What occupations within these fields would best suit your interests and abilities as well as your financial needs? What are the tasks required?

ABOUT THIS CHAPTER

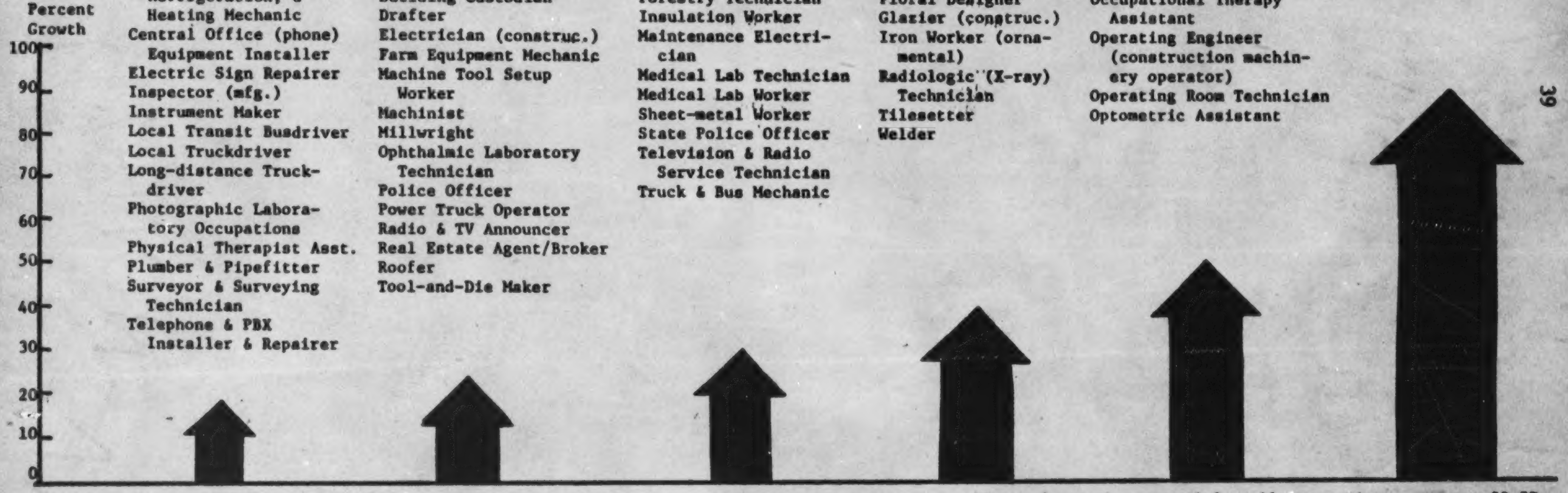
This chapter will introduce you to some general areas of the traditionally male occupations. For each area it offers a small sampling of specific jobs in which employment growth is expected to increase by at least 15 percent by 1990. (In many cases, projected growth is 25 percent or more.) Each sample job includes a thumbnail sketch of the job duties, job environment, the interests and abilities the job requires, and the training needed for an entry-level position. Each sketch closes with the general outlook for that particular occupation, the benefits and advancement opportunities you can expect in such a job, the average national starting salary for that job, and some jobs you might consider that are similar to the one described.

Keep in mind that this handful of occupations cannot begin to describe the thousands of jobs open to you in each of these fields. Your best approach to this chapter then, may be to read the introduction to each of the general areas first. You can choose the area that interests you the most, such as engineering and science technology or mechanics and repairer occupations. Then read the specific job descriptions provided under that heading. If none of the jobs sound attractive to you, you can go on to another area that interests you and read the job descriptions under that area.

You may find that one general area interests you, but the specific jobs described do not appeal to you. In that case, you may need to learn more about other job opportunities within that field. Each job description lists a number of related jobs. You can read more about those jobs as well as other jobs in that field by going to a junior or community college or vocational-technical school career center. Your public library or local State Employment/Job Service also has materials available. Ask to see the Occupational Outlook Handbook, the Guide to Occupational Exploration, and/or the Dictionary of Occupational Titles. All of these are publications of the U.S. Department of Labor. They are also the basis for the sample job descriptions in this chapter. If you go to the Job Service, ask to talk with a counselor (not an interviewer) who can show you which books to use for the information you need and how to use them.

The chart on the following page indicates the projected growth rates for 71 specific occupations. Most of them are traditionally male occupations, although a few traditionally female ones are listed when the growth rate is especially high for that occupation.

*PROJECTED GROWTH RATES FOR SELECTED OCCUPATIONS 1978-1990



Air-conditioning, Refrigeration, & Heating Mechanic
Central Office (phone) Equipment Installer
Electric Sign Repairer
Inspector (mfg.)
Instrument Maker
Local Transit Busdriver
Local Truckdriver
Long-distance Truckdriver
Photographic Laboratory Occupations
Physical Therapist Asst.
Plumber & Pipefitter
Surveyor & Surveying Technician
Telephone & PBX Installer & Repairer

Appliance Repairer
Auto Mechanic
Auto Parts Counter Worker
Building Custodian
Drafter
Electrician (construc.)
Farm Equipment Mechanic
Machine Tool Setup Worker
Machinist
Millwright
Ophthalmic Laboratory Technician
Police Officer
Power Truck Operator
Radio & TV Announcer
Real Estate Agent/Broker
Roofer
Tool-and-Die Maker

Auto Body Repairer
Automobile Painter
Computer Programmer
Engineering & Science Technician
Forestry Technician
Insulation Worker
Maintenance Electrician
Medical Lab Technician
Medical Lab Worker
Sheet-metal Worker
State Police Officer
Television & Radio Service Technician
Truck & Bus Mechanic

Bartender
Cement Mason & Terrazzo Worker
Cook/Chef
Correction Officer
Dispensing Optician
Display Worker
Floral Designer
Glazier (construc.)
Iron Worker (ornamental)
Radiologic (X-ray) Technician
Tilesetter
Welder

Cashier
Dental Lab Technician
Electroencephalographic (EEG) Technologist & Technician
Guard
Hotel Housekeeper & Assistant
Insurance Claim Rep.
Occupational Therapy Assistant
Operating Engineer (construction machinery operator)
Operating Room Technician
Optometric Assistant

Business Machine Repairer - 56.0%
Computer Service Technician - 92.5%
Dental Hygienist - 85.7%
Lithographer - 61.1%
Respiratory Technician & Therapist - 55.0%
Travel Agent - 62.2%

Source: Bureau of Labor Statistics

*Rate of growth expected for all occupations - average 20.7%

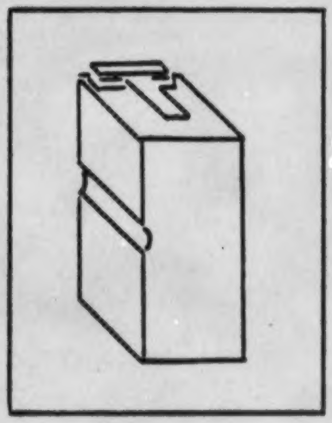
Most of the jobs described in this chapter require one to two years of training. Perhaps you have checked on all sources of financial aid, and training is out of the question for you at this time. In that case you may need a lower skill job to start with.

Many women already have skills in a traditional job, such as clerk-typist, salesclerk, LPN. You could take a traditional job while you are studying or saving money to train in a nontraditional field. Or you could take a less-skilled job in a nontraditional field and upgrade yourself through union or company training programs. Whenever possible, job descriptions in this chapter include minimum training and lower-skilled levels of that job as well as advancement opportunities.

About the Specific Job Descriptions

A word of caution, however, about some of the items in the specific job descriptions. Information under the headings of "job outlook," "salary," and "job benefits" has been included. It should be noted, however, that these items can vary widely, depending on such factors as geographical area, the type industry and/or company you work for, whether or not you belong to a union, etc.

In regard to job outlook, geographical area and the stability of the specific industry you plan to work in are the main considerations. Machinists may be in great demand in one industry while they are laid off in another. You must also consider the fact that many jobs do not exist in every state or geographical region because the industries which employ workers in these jobs do not exist in every state or geographical region. Thus Texas may be begging for instrumentation technologists, while Maine may be tending to its lobster.

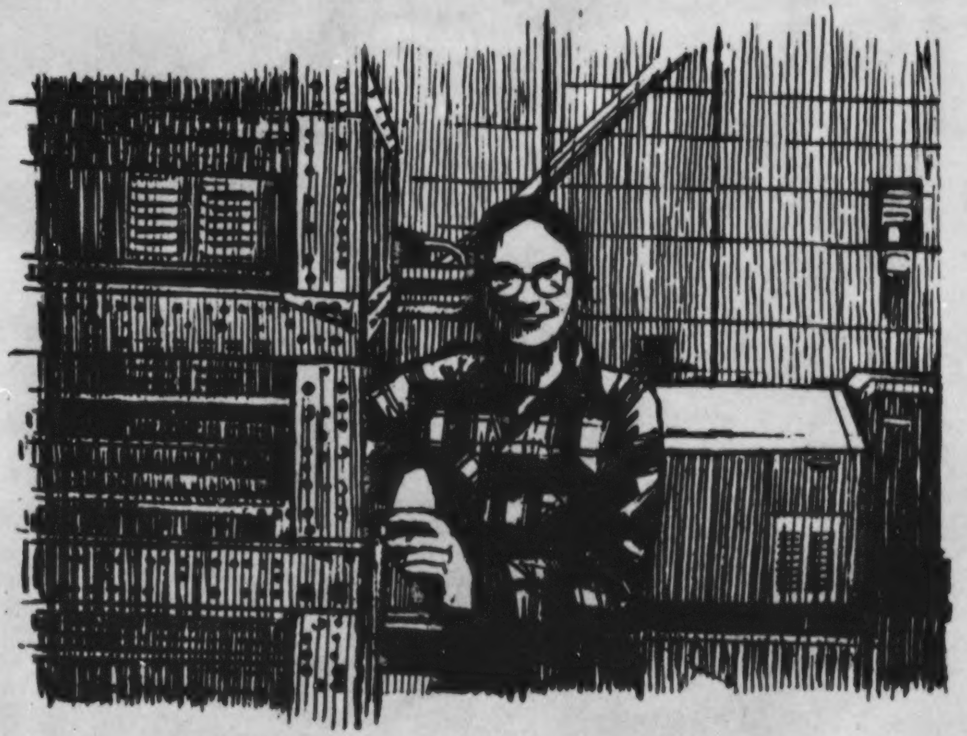


The job outlook presented in this guide is based on a ten-year national projection. Be sure to check with your school placement office or local State Employment/Job Service office before deciding on a specific occupation. Their interviewers or counselors can tell you what the local job outlook is for the area you are interested in.

The availability of training is another factor you must look into. In areas where there are few jobs in certain occupations available, there probably will not be many training opportunities in those occupations. Nevertheless, some programs are in such high demand by students, schools may offer training in those fields regardless of the local employment outlook. Graduates of such programs will have to relocate in order to find jobs. You may need to consider this, too, when you make your career decision.

There are a number of points to keep in mind when reading the salary information. Both entry level salaries and the average salary for all workers in each occupation--experienced and inexperienced--are given. These salaries represent the 1981 national averages. Salaries may vary radically, however, from one part of the country to another, from one industry to another, and sometimes even from one employer to another.

Salary variations between employers--like benefit variations--are often determined by size and whether or not the workers are unionized. The larger companies generally offer the higher salaries and benefits. When workers are unionized, salaries and benefits are also considerably higher. As in the case of job outlook, you will need to check with your school placement office or State Employment/Job Service to learn the range of wages for a particular occupation in your community.



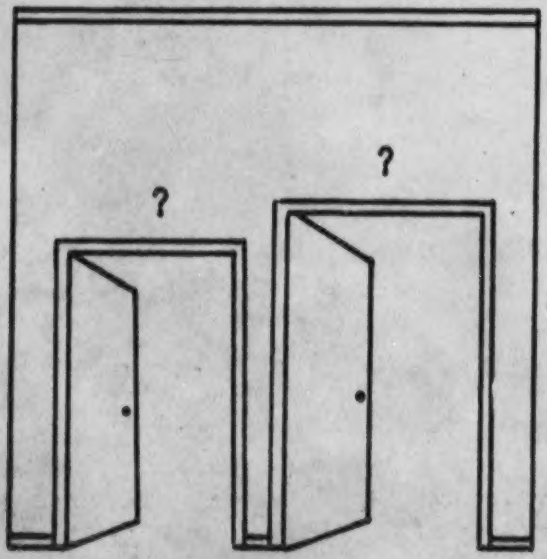
Keep in mind, also, that if you have been employed in a traditional job for several years the entry level salaries listed in this chapter may seem low. They may even mean a cut in pay at first. But nontraditional jobs usually offer better advancement possibilities with greater salary increases than most traditional jobs. You will most likely surpass your present salary in a few months or two to three years at the most.

And this will only be the beginning. Many nontraditional jobs have excellent career ladders. With additional training and experience at each step, you can move from one job level to another, each one higher than the one before. The career ladders that go with most nontraditional jobs can generally raise you far above the highest salary level of your present job.

Likewise, it is difficult to make accurate generalizations in the area of job benefits. When a job description states that benefits are "good," it means that basic benefits such as medical, life, and disability insurance, vacation and sick leave, and a retirement plan are probably provided.

The amount of annual and sick leave, the quality of various plans and insurances, and the extent to which employers themselves contribute to such plans may vary, however. Generally speaking, the larger the company the greater the benefits. Very large corporations may even include profit-sharing or stock-option plans. Workers can then benefit from their productivity and have some small control of the future of the companies they work for. High technology and industrial jobs are more likely to have these added benefits. They are described as "excellent" or "usually excellent."

Benefits are generally more limited in small businesses. Some may offer the basic benefits while others may do little more than match Social Security withholding and contribute toward Workmen's Compensation and Unemployment Insurance. If you are self-employed, you must work with an agent to arrange for benefits and insurances. These can be very costly when you do not represent a group.



Before You Make a Decision

Before you make any major career decision, however, be sure you talk to a counselor. Every school and most programs--adult or continuing education, traditional or nontraditional--have vocational or career counselors. Likewise, school placement offices and public employment services have employment counselors who can provide vocational and career guidance. (Employment counselors should not be confused with employment interviewers, who only provide specific job referrals. You will need to specify that you want to see a counselor.)

Counselors can help you pinpoint your skills, aptitudes, and interests. They can help you weigh the advantages and disadvantages of one job or job field over another, or one training program over another. They can provide more detailed information about each of the jobs and job fields described here, or help you find it. They can give you information about the labor market in your area. And they can assist you in the whole decision-making process, a process which may be complicated and confusing if you tackle it alone.

If your counselor cannot give you all the information you need to make a sound decision, you will need to track it down yourself. Most librarians can help you with this. Above all, in checking on local market information, be sure you ask your local State Employment/Job Service representative if there is a current demand for the specific job or job field you are considering and what the entry-level salaries are in your area. Such information is essential before you make your decisions.

Keeping in mind, then, local variances in certain job information, you are invited to explore some of the jobs and occupational areas open to you. Remember, however, that this is only a small sample. The world of work is wide and opportunities abundant. This is the time to browse awhile on your job search journey.

ENGINEERING AND SCIENCE TECHNOLOGY

Our country today is troubled. We have air and noise pollution, energy shortage and waste, chemical waste to dispose of, dying cities, lack of needed transportation and traffic control, and diseases with no cures. These problems can be solved only through technology.

Although carpentry, the electrical trades, plumbing, and some other construction trades have become the "traditional" nontraditional jobs for women, women should keep in mind that hard physical labor isn't the only way to earn a good salary in a man's world. The science and engineering technologies offer a host of opportunities for skilled and semiskilled workers. As Rohdel G. explains it, "They have so much growth and dimension. There's so much to choose from and they are always changing."

Because of rapid developments and changes, the need for qualified technicians is great. The jobs are relatively new and do not involve physical strength. They have not yet been identified as strictly "male" jobs. As a result, women have little difficulty getting hired and trained and meet with less opposition on the job. And with the rapid technical advances being made, openings in the technical field will continue to increase throughout the 1980's. It is literally a "wide-open" field.

The technical field is also one in which career ladders are clearly visible. Technicians frequently go on to college and even graduate schools (often at the expense of their companies). They become engineers or hold other professional jobs in their fields.

Rohdel G. can attest to the opportunities such career ladders offer. By going on for a college chemistry degree, she moved from a technician job to become Supervisor of Chemical Stores for a large corporation.

Interest and ability in science are the most important qualifications in this field. You should also have a number of high school science and math courses. If you didn't take them in high school, it's still not too late to do some makeup work. It's surprising how much more a motivated adult can accomplish in less time than a high school student who's biding time until graduation.

Some women stay away from the technologies because they firmly believe they are "no good" at math, science, and/or technical courses. They might be surprised, however. A director of a nontraditional training program explains that "it is common for a woman to tell us she has no skills, but when we ask her what she does when a lamp switch breaks, we find out she has a whole set of tools and fixes everything in her home...." Linda O., an electronics technician was surprised and pleased: "I thought I just wasn't good at math, but I was delighted to discover I could do it--and well."

It may take some special help at first, but with hard work you can probably overcome uneasiness or lack of preparation in math, science and technical areas. (Chapter 3 suggests some ways of doing this). You may be surprised to find that you are much better in science, math, and the technologies than you believed you would be.

The types of engineering and science technology open to you may well be endless. New technologies are being developed almost daily.

Examples include

- Aeronautical Technology
- Air-conditioning, Heating and Refrigeration Technology
- Conservation Technology
- Electronics Technology
- Industrial Production Technology
- Instrumentation Technology

- Mechanical Technology
- Nuclear Energy Technology

Then there are the technologies within the physical and life sciences. You can choose a skilled or semi-skilled career from Chemical Technology, Meteorological (Weather) Technology, Geological (Earth) Technology, Hydrologic (Water) Technology, Agricultural Technology, Biological Technology. Don't let all the names scare you--they may sound impossible, but the jobs and the training they require are not. A couple of years of study or training through a company's own training program can land you a clean job, excellent working conditions, advancement opportunities, and outstanding pay.

Jody A. is an entry level communication technician for AT&T. "My last job as a filing clerk was boring, and I only made $3.50 an hour. My new job pays $5.10 an hour"--and she's only beginning. In 1981, a woman in most of these occupations could expect to earn a starting salary of $13,700. The average salary for all workers in the engineering and science technology field is over $20,000.

Within the general technologies listed above, there are many specialized ones. Each of them employs many different types of workers and technicians. From the Engineering Technologies we will take a closer look at ELECTRONICS TECHNICIAN. From the Physical and life sciences we will look at METALLURGICAL TECHNICIAN. We will also look at the related job of SURVEYOR.

> "People think electronics is just fixing TV's, but it's much more. And the field is fantastic for women." (Marie M.)

JOB TITLE ELECTRONICS TECHNICIAN

JOB DUTIES Electronics Technicians lay out, install, repair, and/or operate electronic equipment. They may specialize in computers, radar, missiles and spacecraft, or TV and radio equipment. They assemble experimental models and test them, recording results and recommending changes.

Electronics Technicians also write technical reports. They develop charts and graphs to describe systems and their problems to engineers, who develop new designs and procedures. Electronics Technicians may also make items such as coils, terminal boards, and chassis, as the need arises. To do this they use bench lathes, drills, and other machine tools. They may also teach and supervise lower grade technical workers; Electronics Technicians are supervised by an engineer.

JOB ENVIRONMENT Electronics Technicians generally work in clean, quiet, well-lighted and air-conditioned areas. The work is not strenuous, but the pressures of spotting problems and making fast diagnoses and quick repairs may be great. Technicians may be required to work irregular or late hours.

INTERESTS & ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--building models
--repairing radios, TV's, or amplifiers
--reading technical articles
--studying science
--solving math problems

You should also be able to
--visualize and make things from patterns or blueprints
--solve problems, using facts and personal judgment
--work accurately with detail
--work on different projects and with changing situations
--deal with different kinds of people

You will also need
--good color vision
--good manual dexterity
--good hand-eye coordination

TRAINING NEEDED	One to two years of postsecondary school training, two years of college study in the sciences, or a three to four-year apprenticeship. Occasionally employers will train. Or, more likely, once you have gotten the basics they will help you upgrade by paying your tuition or offering company courses.
JOB OUTLOOK	Varies with specific industrial activity, economic conditions, and defense spending. Expected to increase faster than average due to the surge of computerization and the increase in defense spending.
JOB BENEFITS & ADVANCEMENT	Generally excellent benefits, varying with the size and policies of the manufacturer. Advancement may be to technical sales or as a manufacturer's field representative or federal employee. You may move into production supervision, industrial safety, or--if you have good writing skills--technical writing. Additional study can lead to an engineering degree.
SALARY	Starting salaries with a two-year postsecondary program are about $13,700 nationally. The average salary for all Electronics Technicians is slightly over $20,000.
RELATED JOBS	Electrical Technician, Semi-conductor-Development Technician, Instrumentation Technician, Electrical Drafter, Electronic Drafter.

> "I've got the most interesting job in the Company! It's never boring, and the education is there for the listening." (Theresa B.)

JOB TITLE METALLURGICAL TECHNICIAN (also METALLURGICAL-LABORATORY ASSISTANT, METALLURGICAL TESTER, PHYSICAL-LABORATORY ASSISTANT)

JOB DUTIES Metallurgical Technicians examine and test metal samples to determine their physical makeup. They study the samples under microscopes to note their structure and characteristics. They run tests to see how the metals react under different conditions, such as wind, temperature, and stress.

To study a specimen, the Metallurgical Technician mounts it in epoxy, polishes it, and etches it. Etching involves treating the metal with acid to make its structure more easily seen. Specimens are then photographed in order to measure the size of the grain and determine their hardness.

Metallurgical Technicians also examine metal and alloy samples with X-ray, gamma-ray, and magnetic-flux equipment. In this way they can check it for internal fractures, impurities, or other defects. Numerous other tests are run to determine the strength or other properties of the different metals.

Metallurgical Technicians also submit written reports on the various tests and their results. They work under the supervision of a Metallographer.

JOB ENVIRONMENT Work is conducted in clean, well-lighted, and air-conditioned laboratories.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--using test tubes, microscopes, or other scientific equipment
--reading scientific or technical manuals or journals
--collecting rocks and identifying the minerals present
--studying algebra or geometry
--weighing facts and thinking problems through

You should also be able to
--understand scientific language and symbols
--follow technical instructions given verbally, in writing, or in the form of charts and graphs
--use eyes, hands, and fingers to operate delicate equipment

You will also need
--good vision
--a good memory
--precision and accuracy
--good observation of detail

TRAINING NEEDED	Minimum on-the-job training is apprenticeship by the employer or two years in a postsecondary school. Apprentices must have high school science courses.
JOB OUTLOOK	Jobs can be found in most parts of the country. Employment of Metallurgical Technicians is expected to increase faster than the average for all occupations throughout the 1980's.
JOB BENEFITS AND ADVANCEMENT	Benefit and advancement opportunities are excellent. With further study and experience you can advance to technologist and even engineering positions.
SALARY	Salaries are rising rapidly. Starting salaries are about $13,700, while average salaries for all workers in the field are slightly over $20,000.
RELATED JOBS	Ultrasound Technologist, Sampler (minerals and earth), Film Laboratory Technician (motion pictures), Assayer, Chemical-Laboratory Technician, Hot-Cell Technician, Drug Technician, Scientific Helper, Quality-Control Technician.

> "I love the outdoors and I prefer working in a group. This job is just prefect for me." (Geraldine E.)

JOB TITLE SURVEYOR

JOB DUTIES Surveyors plan, organize, and direct survey parties of four to seven people. With their teams, they pinpoint the exact location and measurements of points, elevations, lines, areas, and contours of the earth's surface. In this way, they establish official land boundaries, research deeds, write descriptions of land for legal purposes, help to set land valuations, measure construction and mining sites, and collect information for maps and charts.

Some Surveyors specialize in highway or land surveying, working for state or federal government or architectural or contracting companies. Others specialize in mining, pipeline, gravity or magnetic surveying and work for mining, petroleum, or natural gas companies.

In order to get the information they need, Surveyors may research previous survey information, maps, deeds, aerial photographs, and other records. They must keep accurate notes, records, and sketches to describe the work performed. They coordinate their findings with the work of engineering and architectural staff, clients, and/or others involved in the project. Surveyors who locate and describe land boundaries are legally responsible for their work. They must therefore be licensed by the state.

JOB ENVIRONMENT Surveyors spend much of their time outdoors where working conditions are determined by the weather. They often work overtime in the summer. Thermal underwear in the winter and boots to avoid snakebites, poisonous plants, etc. are standard equipment. Hiking and climbing with heavy packs of equipment is necessary. Surveyors sometimes must commute long distances or find temporary housing near the survey site. A considerable amount of work is done in the office preparing maps, sketches, and reports.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--working outdoors
--climbing and hiking
--mechanical drawing and drafting
--working math problems in your head
--making models of airplanes or cars following detailed plans

--studying sciences such as physics or chemistry
--working with scientific formulas

You should also be able to
--work closely with people as a team
--visualize and understand objects, distances, sizes, and other abstract forms
--pay attention to minute details
--have leadership and supervisory qualities

You will also need
--physical stamina to work outdoors and carry heavy equipment
--good eyesight, coordination, and hearing

TRAINING NEEDED

One to three years of postsecondary training plus on-the-job training. High school graduates with little formal training sometimes start as surveyor helpers. Three to eight years of experience and passing a written exam is generally required for licensing.

JOB OUTLOOK

Expected to increase as fast as average for all occupations through the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits will vary with the type company you join, but they are usually very good. With experience, Surveyors can advance to Party Chief and finally to Licensed Surveyor. Some companies will hire high school graduates as Surveyor Helpers. After several years of on-the-job experience along with some formal training, Surveyor Helpers can advance to Instrument Assistant and then to Party Chief. Those with postsecondary school training in surveying can begin as Instrument Assistant and work up. Promotions are often based on written examinations as well as experience.

SALARY

Starting salaries for beginners with associate degrees and courses in surveying range from $13,000 to $16,000. The average salary for workers in the federal government is about $25,000.

RELATED JOBS

Cartographic Drafter, Field-map Editor, Geodesist, Map Editor, Mosaicist, Photogrammetric Engineer, Photogrammetrist, and Topological Drafter.

INDUSTRIAL PRODUCTION AND RELATED OCCUPATIONS

Factories, mass production, and jobs. They go together. But most women are found in the small products assembly line making minimum wage (electronics assembly, for example.) Only a few women work on the automobiles, boilers, and machine tools. Only a few women hold the inspection jobs and the supervisory jobs; only a few women run the printing presses and tend the boilers; and only a few women collect the larger pay checks.

Salaries in the industrial field are higher than most traditionally female jobs. Women should be aware, however, that the increase in employment for most industrial occupations is not as great overall as in the engineering and science technologies or mechanics and repair work. Most jobs in these areas are expected to increase by about 25 percent on the average. Some computer-related jobs will even increase from 50 to 90 percent.

Except for boilermaking and lithographer, however, most occupations in industry are expected to increase by less than 25 percent. (And boilermaking requires above-average strength even for a man). Some jobs, such as tool and die maker and printing press operator, will increase up to 24 percent. Others, such as pattern-maker, molder, and corer, will increase by little more than 5 percent. A number of jobs in the industrial field are expected to decrease considerably by 1985.

One of the jobs in industry with a good projected growth rate is welding. Welding is expected to increase over 33 percent by 1990. In welding you can choose your skill level and, therefore, your salary. It is also a trade that you can use in either manufacturing and industry or in the construction field.

Perhaps the best opportunities in the industrial trades is an occupation in the printing field which is predicted to increase by over 61 percent --lithographer. It is an especially good trade for women, requiring only average strength, with regular hours and good pay. Women are already entering the field in increasing numbers. Stay away from the jobs of electrotyping and stereotyping, however. According to the latest available information, these jobs--also in the printing field--are expected to decrease by about 20 percent.

We will be looking at the specific aptitudes and interests necessary for the jobs of lithographer and welder in individual job sketches. Generally speaking, however, if you are considering going into the industrial or industrial-related field, you will need an average ability in math and manual dexterity. You will also want to have a good mechanical ability and be able to picture shapes and spatial relationships in your mind. It will be helpful if you can take courses in blueprint reading and machine shop.

If you are a "fixer" at home--interested in doing minor repairs on your appliances, for example--you may be happy in the industrial field. Some women are uncomfortable working with or around large machinery. However, once you know how the machines work and what they do, you will become comfortable with them despite their size and noise.

Dorothy M., a tool and die worker, found that "the machinery was the hardest part of it. They told me not to be afraid of the machine--that I would get used to it. But I was afraid something could happen--I didn't know what. Then you learn how things work and it's all right. This job has been closed to women for so long--it's a good feeling to know I'm able to do it!"

In addition to aptitude, interest, and the right kinds of courses, it helps to have a high school diploma if you want to go into a skilled job. Skilled workers, such as stationary engineers and machinists, need considerable training to do their jobs. Three or four year apprenticeships are usually recommended for these jobs, but such apprenticeships are limited and difficult for women to get. Semi-skilled workers, on the other hand, may not need a diploma at all and may require only brief on-the-job training. And the union you belong to or the plant you work for may help you move up from there into an apprenticeship.

The industrial field is not notoriously macho or masculine. Nevertheless, you should be prepared for some resistance from men in industrial and industrial-related occupations. It would be helpful, therefore, to read the section on the real barriers and how to overcome them.

Now let's take a close look at LITHOGRAPHER and WELDER.

> "I like the money. I want to be challenged. The work changes, so I don't get bored. And I have relatives who are lithographers, too." (Debra F.)

JOB TITLE LITHOGRAPHER

JOB DUTIES Lithographer is a general title for offset-print workers. Lithographers generally specialize in one of several areas: camera operators, lithographic artists, strippers and platemakers. Camera operators take photographs of the material to be printed and develop negatives. Lithographic artists make whatever corrections are needed on the negative. They use special chemicals, dyes and tools to sharpen images, lighten negatives or darken areas. The stripper then makes layouts by arranging and pasting the negatives on layout sheets called "flats" or "strip ups."

After photographs are made, they are sent to platemaking departments. Here the plates are covered with special chemicals and the layout sheets are set on top of the plate and exposed to strong lights. The plates are treated to bring out the images. Then the plate is put on the press while a lithographic press operator adjusts the pressure, water and ink rollers, mixes the inks and operates the offset press.

JOB ENVIRONMENT You will be on your feet most of the day and sometimes work overtime. For lithographic artists and strippers, the work can be tiring because of the fine detail. It is not, however, physically demanding. Platemakers work with toxic chemicals and may have skin irritations. Work areas are usually air-conditioned and well-lighted. Some lithographers work at night.

INTERESTS AND ABILITIES NEEDED You should enjoy (or think you might enjoy) activities such as
--painting, drawing, or modeling
--decorating and creating decorations for objects such as cakes, ceramics, pottery, etc.
--working paint-by-number pictures
--using wood-burning tools to make designs
--working with your hands and making things such as jewelry, pottery, etc.
--turning out high quality work
--studying chemistry and some other sciences

You should also be able to
--determine which art tools are best for different purposes
--visualize the finished product from drawings and sketches

You will also need
--good manual and finger dexterity
--patience and precision
--good eyesight

TRAINING NEEDED

Employers sometimes hire high school graduates with art or photography hobbies and courses. The best opportunities, however, are for graduates of a two-year course in printing technology. Five year apprenticeship programs are occasionally available in which you can work and get paid as you learn. Or you can start as a helper and later apply for apprentice training through the employer or unions. The Graphic Arts International Union, for example, has a PEP program (Project for Equal Progression) in which union women are upgraded from lower paying, dead-end jobs to skilled jobs within the trade.

JOB OUTLOOK

The whole field of offset printing continues to grow rapidly. Job opportunities, therefore, are expected to increase faster than average for all occupations in the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits and advancement opportunities vary depending on the size and type of company you are with as well as whether you are unionized or not. With experience, you may advance to supervisory positions, open your own business, or do free-lance or contract work.

SALARY

Starting salaries for lithographers will run from $14,000 to almost $17,000. Average salaries for all lithographic workers are about $28,000.

RELATED JOBS

Sign Painter, Jeweler, Decorator, Engraver, and Photoengraver.

> "There isn't any question about women being able to do this job--Rosie the Riveter proved it a long time ago. And I'm sure glad she did--I love the job and I love the pay." (Andrea D.)

JOB TITLE WELDER (ARC, GUN, GAS, RESISTANCE, SOLID STATE)

JOB DUTIES Welding is the process of joining pieces of material, usually metal, by melting them with extreme heat. For each type of welding, different processes are used to create heat and apply it to the parts to be joined. In arc welding, heat is created by electricity. In gas welding, burning gases melt the metal. Gun welding involves the use of electrodes to heat the metal to the joining temperature. Other processes include resistance and solid state welding.

Welders are protected from burns and eye injuries by wearing protective clothing. This includes safety shoes, goggles, and helmets with protective lenses.

JOB ENVIRONMENT Good lighting and ventilation, but may be exposed to toxic fumes and extreme heat. Highly skilled workers may spend long periods of time in booths where they may be isolated from other workers. Welders are often in contact with grease, rust, and dirt on the metal surfaces.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as

--building models according to detailed plans and instructions
--studying science
--working basic math problems
--working with your hands

You must also be able to

--work with precision
--work in cramped or awkward positions
--concentrate on detailed work for long periods

You will also need

--good eyesight
--good hand-eye coordination

TRAINING NEEDED Unskilled welding jobs require only on-the-job training. Preference is given to applicants with high school or some vocational school training in welding. Courses in shop math, mechanical drawing, blueprint reading, physics and chemistry are also useful. Semi-skilled welders can obtain jobs with a few months to a year of postsecondary training. Skilled welders hold associate degrees or sometimes obtain training through apprenticeships. Many go on for further advanced training, often at the expense of the employer.

JOB OUTLOOK

The need for welders varies somewhat with the economy. Employment of welders is, nonetheless, expected to increase faster than the average for all occupations through the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits depend on the size of the company, type employer, and the industry you work for. Many employers train and upgrade unskilled and semi-skilled workers at no expense to the employee. Skilled welders may be promoted to welding inspectors, technicians, or supervisors. There is a strong demand for experienced welders with college training in the composition and behavior of metals. These welding engineers develop new uses for welding. A few experienced welders open their own repair shops.

SALARY

Semi-skilled industrial welders average $10 an hour (up to $23,000 a year.) More highly skilled welders in construction earn considerably more, about $13.50-$14.50 an hour. Their work is seasonal, however, and it often involves considerable overtime. There is, therefore, no certain annual income based on the hourly wage.

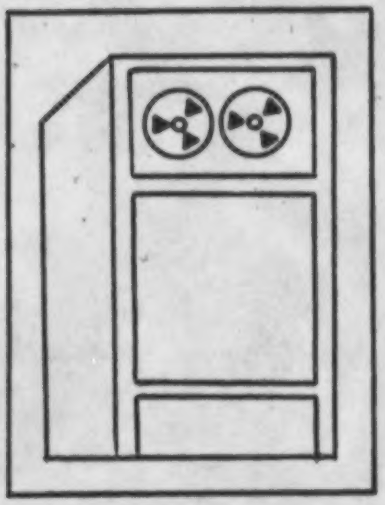
RELATED JOBS

Blacksmith, Forge Shop Worker, All-round Machinist, Instrument Maker (Mechanical), Machine Tool Operator, Tool-and-Die Maker.

MECHANICS AND REPAIRER OCCUPATIONS

Ours is a highly technical world. We have invented all kinds of machinery and equipment to make our lives easier. We have air-conditioners, washing machines and dryers, cars and buses, computers, television sets, toasters, telephones, and copier machines. Industry, businesses, utility companies, transportation companies and the ordinary person alike all depend on such machines as a major part of their everyday lives. When one breaks down, we wonder how we are going to get by until it is fixed. Mechanics and repairers earn their livings answering our distress calls.

Basically, mechanic and repairer jobs call for a good ability to work with machinery and excellent manual dexterity. Finger dexterity is also important in the jobs involving smaller parts, such as TV and radio and business machine repairers. Employers often look for people who list hobbies such as model building or car, TV, and stereo repair. A high school diploma is a definite plus and sometimes a requirement. You will be a step ahead of other applicants if you have also taken courses in math, chemistry, physics, and perhaps blueprint reading and machine shop. If you haven't, it is never too late to go to school and pick up such courses at night. You can then quality for apprenticeship or on-the-job training. If you enroll in a vocational-technical school, you can take such courses right along with the other ones needed to complete your program. Or you can start these courses while waiting to get into the specific vocational program you have applied for.



Computers have become a great part of the lives of small as well as big businesses. As a result, a 92 percent increase in job openings is expected by 1990. Truck and bus mechanics will also be in demand through 1990. So will automobile body repairers. Industrial machinery repairer openings will go up at least 66 percent by 1990.

The job of industrial machinery repairer, however, requires a good deal of physical strength. You must be able to lift large pieces of equipment. It is not impossible for women, but many other jobs in the field require only average strength. Some of these are: Maintenance Electrician, TV and Radio Repairers, Computer Service Technician, and Business Machine Repairer. The latter two will increase very rapidly through 1990--by as much as 92 and 56 percent respectively. They offer outstanding opportunities especially if you prefer a cleaner, less physical job than other mechanic jobs generally involve.

As with the technologies, career ladders are often built into repairer jobs. A year or two of further training can move an Air-Conditioning and Refrigeration Mechanic into a job as a technician. Technicians often plan design requirements for manufacturing and testing equipment as well as performing more complex installation and service work. Mechanics install the equipment and repair and maintain individual parts of a system. Salaries for mechanics are lower and responsibility is not as great.

Because of the career ladder, it would not be unreasonable for an Air-Conditioning Mechanic to become an Air-Conditioning Technician. Eventually, with continued training, you might even climb to an engineering job. Likewise, experienced Computer Service Technicians may become Computer Programmers. The demand for workers in these higher-level technical and professional jobs is great. Companies are eager, therefore, to help a motivated employee climb such career ladders. And as you climb, each level in turn has its own advancement opportunities.

A word of caution regarding the mechanical and repairer jobs. While they are not as hard for women to break into as the construction trades, it is, nevertheless, a "masculine" field. Women may meet with hostility for a while yet. You will probably find less of this, however, in the newer, more technical--and, therefore more "neutral" jobs. These include television and radio repair, business machine repair, and especially computer repair. In the more obviously mechanical fields such as truck and bus mechanic, you may encounter employer and co-worker resistance.

The possibility of such resistance should not stop you, however, from training for a job in the mechanic-repairer field. As Barbara J., an auto mechanic, simply advised: "Be prepared to face animosity if it comes but don't return it. And don't let it prevent you from entering a field you are really interested in and feel you could be really successful at." The section on "The Real Barriers" gives you some tips and suggestions for coping with resistance and harassment should they occur.

On the following pages are sketches describing the jobs of COMPUTER SERVICE TECHNICIAN, BUSINESS MACHINE REPAIRER, TELEVISION AND RADIO SERVICE REPAIRER, and AIR-CONDITIONING AND REFRIGERATION MECHANIC.

It should be noted that the term Computer Service "Technician" is used interchangeably with "Repairer." For this reason we will include it in this section. Computer Service Technicians not only install the system, but troubleshoot, maintain and repair it whenever something goes wrong. Because the system is so complex, it is virtually impossible to repair it without having the technical knowledge of exactly how the whole system works. It is, therefore, a repair job that requires more than a repairer's level of theory. It will require a year or two more of formal training than the average repairer job, but the outstanding salary and advancement opportunities make it more than worthwhile. We will also include in this section Television and Radio Service "Repairer" (also used interchangeably with "Technician").

> "Computers are an open door for women. Opportunity is there--and it's only the beginning!" (Arlene C.)

JOB TITLE COMPUTER SERVICE TECHNICIAN (also FIELD ENGINEER, CUSTOMER ENGINEER)

JOB DUTIES Computer Service Technicians install and repair computer equipment. They follow blueprints and manufacturers' detailed instructions as well as customer layout plans. They direct installation, demonstrate equipment, and train workers in repair and service techniques.

Computer installation involves laying cables and hooking up intricate electrical connections between each unit of the equipment. In servicing equipment, technicians may oil, clean and adjust the parts to keep the system in good running order. Computer repair may require several hours to diagnose a single malfunction. Repairs may involve tightening or soldering wires and replacing components. Computer Service Technicians keep exact records of repairs, adjustments, and tests.

JOB ENVIRONMENT Computer Service Technicians generally work in large metropolitan areas where computers are used by many businesses. Installation and repair work is often done in large, air-conditioned offices. Although the normal workweek is 40 hours, a considerable amount of overtime can be expected. Technicians are also on call at night for emergency repair. Some companies rotate shiftwork. Travel is usually local and does not involve overnight trips. Some bending and lifting is necessary, but the work is not strenuous. There are no work hazards other than burns and electric shock. These can be avoided by following basic safety practices.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as

--hobbies such as operating or building ham radios and stereo equipment
--building models according to detailed diagrams and instructions
--reading magazines or trade papers about mechanics
--repairing lamps and extension cords
--working with your hands and fingers
--solving basic math problems

You should also be able to

--understand mechanical detail
--use simple hand tools or machines
--visualize how a system operates
--work well with people

You will also need
--good eyesight and color vision
--normal hearing
--a driver's license
--patience

TRAINING NEEDED	One to two years postsecondary training in basic electronics or electrical engineering. Employers also consider the electronics offered by the Armed Forces to be excellent preparation for trainees.
JOB OUTLOOK	Exceptionally good. Employment of Computer Service Technicians is expected to grow much faster than the average for all occupations through the 1980's. Economic expansion and the development of new uses of computer equipment will increase the need for experienced technicians.
JOB BENEFITS AND ADVANCEMENT	Most technicians work for large manufacturers where benefits are excellent. Some experienced technicians obtain advanced training (often through the company) and become "troubleshooters." They solve the big problems and are highly paid. Experienced technicians with leadership abilities may become supervisors and service managers. Others may move into equipment sales or--with further training--programming or management.
SALARY	Salaries for fully trained technicians in the computer field range from $17,500 to over $26,000. Entry-level salaries are about $15,000. Overtime pay is excellent.
RELATED JOBS	Appliance Repairers, Radio Repairers, Radar Mechanics, Television Service Technicians.

> "Where I was a secretary, I was fascinated watching the repairmen fix our office machines. It didn't look that hard, so I decided to learn how myself. I love it and I can earn nearly twice as much.
> (Janet C.)

JOB TITLE BUSINESS MACHINE REPAIRER (also OFFICE-MACHINE SERVICER, FIELD ENGINEER, OFFICE-EQUIPMENT MECHANIC, CUSTOMER ENGINEER)

JOB DUITES Business Machine Repairers repair and service office machines such as adding machines, calculators, copiers, and typewriters. They visit offices for routine maintenance or to repair equipment. They operate machinery to test the parts and locate problems. They check for wear and replace worn or broken parts. They clean, oil, and adjust the machine and show operators how to use them more efficiently. When a problem is diagnosed, Business Machine Repairers explain it to the customer and make the necessary repair. Most office equipment tests and repairs are made with different types of meters and a small set of hand tools. Hand tools include pliers, screwdrivers, and wrenches. Some power tools as well as soldering and welding equipment are used.

JOB ENVIRONMENT Business Machine Repairers work in offices and wear business clothes. The work is cleaner than most industrial jobs and not too strenuous. There are no hazards. There is a considerable amount of local travel, but overnight travel is not generally involved. Repairers work with little direct supervision. They set up their own maintenance and repair schedule, allowing for emergency repairs.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--building models according to diagrams and detailed instructions
--reading magazines or trade papers about mechanics
--repairing electrical things around the house
--working with your hands and fingers

You should also be able to
--understand mechanical detail
--use simple hand tools
--visualize how a system works
--work well with customers

You will also need
--good color vision
--good hand-eye coordination
--good manual and finger dexterity
--a driver's license
--patience

TRAINING NEEDED

One to two years of technical training in electricity or electronics. Occasionally employers will hire directly from high school if a student has basic electronics courses and/or hobbies involving electronics. Such employers often provide training. The Armed Forces also offer good basic training in electronics. Employers and manufacturers often provide seminars and other types of updating and upgrading.

JOB OUTLOOK

Excellent. The demand for Business Machine Repairers is expected to be greater than the average for all occupations through the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits vary with the size of the company, but they are generally very good. Repairers often advance to sales jobs as manufacturers' representatives. Or they may become service managers or supervisors. Some experienced repairers open their own repair shops, become independent dealers, or buy sales franchises from their companies.

SALARY

Entry-level jobs pay about $14,500. Experienced Business Machine Repairers can expect to earn over $20,000. Workers who are familiar with different types of equpment earn more than those limited to one type of machine. Earnings for Business Machine Repairers are often as great as earnings for computer service technicians.

RELATED JOBS

Computer Service Technicians, Appliance Repairer, Automotive Electrician, Electronic Organ Technician, Instrument Repairer, Radio Repairer, Radar Mechanic, Television Service Technician.

> "I wanted to take a TV repair course, but my friends said I wouldn't like it. I loved the electronics part of it so much I enrolled in a two-year electrical technology program. I repair TVs part-time and study part-time. Going back to school changed my outlook, my priorities, my whole life!" (Carole W.)

JOB TITLE TELEVISION AND RADIO REPAIRER (also, TELEVISION AND RADIO SERVICE TECHNICIAN)

JOB DUTIES TV and Radio Repairers repair and adjust radios and television receivers. They tune receivers on each channel and check the picture and circuits to locate the problem. They examine the chassis, test circuit voltages, test and change tubes, solder loose connections. They repair or replace defective parts and may also install television sets. After locating the problem, they explain it to the customer and estimate the cost of repair.

TV and Radio Repairers follow complex diagrams. They use hand tools and electronic testing instruments such as voltmeters, oscilloscopes, and signal generators.

JOB ENVIRONMENT TV and Radio Repairers work alone in shops or customers' homes. Conditions are generally good. Driving a van, sometimes for considerable distances, is required of technicians who service sets in homes. Possible hazards include electrical shock and strains from lifting and carrying heavy sets. Work week average from 40-48 hours and the work is generally steady.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--figuring out what's wrong with things that don't work
--repairing broken things
--using your arms, hands, and fingers
--working by yourself with little supervision

You should also be able to
--understand detailed diagrams and instructions
--visualize how a system operates
--use simple math to make estimates
--lift heavy objects
--deal well with customers

You will also need
--good hand-eye coordination

--normal hearing
--good eyesight
--color vision
--a driver's license

TRAINING NEEDED

Training for entry-level jobs can be either on the high school or postsecondary level. Programs should be in radio and television repair or electronics and run from one to two years. They include courses in math, physics, schematic reading, electricity, and hands-on repair experience.

JOB OUTLOOK

Employment in the field is expected to increase faster than the average for all occupations through the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits for technicians who work in repair shops or small stores may be limited. About one-fifth of all Television and Radio Repairers are self-employed.

New technicians generally begin working in the shop under supervision. They must keep up-to-date as new technology develops. Training is often provided by manufacturers, employers, and trade associations. Workers also study on their own, using manufacturers' service manuals and technical publications. Experienced technicians in large shops may advance to supervisor or service manager. Others open their own shops. Some work as "troubleshooters" for manufacturers. Advancement to electronics technician jobs require courses in automatic controls, electronic and/or television engineering, and math.

SALARY

Salaries vary widely, depending on skill levels, types of employers, and geographic locations. Some belong to unions and receive higher wages than the average. Entry-level salaries are about $13,500. The average national salary for all workers in the field is a little over $22,000.

RELATED JOBS

Appliance Repairers, Business Machine Repairers, Computer Service Technicians, Communications Technicians, Electronic Organ Technicians.

> "Energy efficiency is the big thing these days--there are new developments all the time. I'm going to school at night so I can be a technician--this is a fascinating field! (Frances L.)

JOB TITLE AIR-CONDITIONING AND REFRIGERATION MECHANIC (also ENVIRONMENTAL-CONTROL-SYSTEM INSTALLER-SERVICER)

JOB DUTIES Air-Conditioning Mechanics install, service, and repair climate-control systems in homes, and commercial establishments. They use blueprints and engineering specifications to mount and assemble the system. Air-Conditioning Mechanics install ductwork and chassis parts and connect tubing and pipes. They put in filters, add freon, and test the equipment to see that it is running properly. They also replace or repair defective or worn parts.

Refrigeration Mechanics install and repair industrial and commercial refrigeration equipment. Using blueprints and engineering specifications, they determine the layouts of components. They drill holes to secure equipment and lift the components into position. They then secure the parts in place with screws, bolts, rivets, welds, etc.

When the components are in place, Refrigeration Mechanics cut, thread and connect pipes between them, add the gas or fluid to the system and start it. They check to see that the system is operating properly, reading gauges and adjusting valves. Refrigeration mechanics also repair systems by replacing or adjusting worn parts. Both Air-Conditioning and Refrigeration Mechanics use electrician's hand tools and test equipment.

JOB ENVIRONMENT Most Air-Conditioning Mechanics work in private homes or offices, although some specialize in industrial equipment. Refrigeration Mechanics work in industrial and commercial settings. Industrial installation and repairs involve heavier work. Installing ducts may mean working in awkward positions in cramped quarters.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as

- --assembling clothing, or other objects according to detailed patterns and instructions
- --reading magazines about mechanics
- --solving math problems
- --studying science
- --working with your hands

You should also be able to
- work accurately and precisely
- use hand tools
- understand mechanical detail

You will also need
- good physical condition for lifting and moving heavy equipment

TRAINING NEEDED

One to two years of secondary or postsecondary training. Limited apprenticeships are available and some employers provide on-the-job training. High school graduates with courses in math, mechanical drawing, electricity, physics, and blueprint reading are preferred for apprenticeships and on-the-job training.

JOB OUTLOOK

The demand for Air-Conditioning and Refrigeration Mechanics is expected to be about the same as for the average for all occupations throughout the 1980's.

JOB BENEFITS AND ADVANCEMENT

Benefits depend on the type and size of the employer. Those working for large equipment manufacturers or dealers may have excellent benefits. Smaller engineering firms or contractors offer fewer benefits. Some experienced Air-Conditioning and Refrigeration Mechanics become supervisors. Some open their own contracting businesses.

SALARY

Beginning wages for Air-Conditioning and Refrigeration Mechanics are about $11,000. Average wages for all workers in the field range from $28,000 to $35,000.

RELATED JOBS

Pipefitter, Plumber, Sheet Metal-Worker, Electrical Appliance Servicer, Electrician, Boilermaker.

CONSTRUCTION TRADES

The building trades are fast becoming the "traditional" nontraditional field for women. As with most traditionally male jobs, salaries are high. But these are not the only rewards. Many men and women take great pleasure in building things--in creating--or helping to create--something from what appears to be nothing. Rita S., the operating engineering apprentice feels a sense of real accomplishment and pride when she can stand back and say: "See that bridge? I had a hand in that!" And for many there is also a real pleasure in physical work, especially outdoor work. They enjoy the sense of freedom and space.

In many ways, construction workers also have more independence than workers in other fields. They can choose their own bosses to an extent. If they don't like working for one contractor, they can go with another with little advance notice or red tape involved. They can refuse jobs they don't want without it hurting their "records." Besides this, many workers know enough about other construction trades that they can build or remodel their own homes. Or they can "trade off" their skills with other workers for the jobs they can't do themselves.

Remember, however, that construction workers are truly at the mercy of the elements. Cold and rain, wind and summer heat and humidity can make life uncomfortable at times, although construction projects generally close down in really severe weather. You may have to work at great heights also if you are on a large project, such as a high-rise office or apartment building. Thermal underwear, steel-toed boots, and hard hats offer little glamour, but a lot of protection against the weather and the job hazards.

Nevertheless, accidents can happen, and the injury rate in construction is higher than that in manufacturing. And after long-term physical labor in cold and wet weather, you will probably feel the wear and tear on your body. Some people even find they are allergic to grass and tree pollens, and are unable to work outdoors at all during the peak construction season.

The weather affects more than your body, too. It affects your hours, which affect your pay. Spring and summer can give you many hours of high overtime pay to make up for the work decline in the winter months. But heavy rains, even in the summer, can lay you off.

For some people, this seasonal nature of construction work is a bonus. Their family or personal needs are such that not working in the winter suits them very well. Many workers enjoy going south for the winter and finding jobs there. Others work on their homes or take odd jobs in their communities. Some, however, find that seasonal lay offs, despite Unemployment Compensation, make it difficult--even impossible --to maintain the standard of living they may want.

The economy plays a role in the construction field also. Construction is directly affected by recessions and inflation. When the economy is bad, building slows or stops. But even when building is slow in one part of the country, it may be booming in another. When an area becomes overbuilt, construction moves to another part of the country. In a few years, the "overbuilt" area is once again underbuilt and construction there starts up again.

Many workers are willing and able to follow these construction trends. Carole E. and her husband are union carpenters. "We just pick up and go where the jobs are. Someday we'll probably settle down and build our own home, but right now, we like this life. We get to see so much of the country that we never could have seen otherwise." Others are not so mobile. Paula F., the sole support of her family, wishes someone had warned her. "I was accepted in the apprenticeship, but I haven't worked more than two weeks in six months now because of the lay offs."

Remember, too, that there are generally no fringe benefits in the construction industry. Contractors don't provide sick leave, vacation pay, or retirement benefits. Workers for public utility companies and industry, however, may have good to excellent benefits as do state and federal workers. Construction workers, of course, are covered by Social Security and Workmen's Compensation (for accidents which occur on-the-job). Unemployment Compensation also provides some income when you have been laid off. Besides this, there are numerous individual retirement and annuity plans as well as insurance plans available to you. There are many books available which explain the various plans. Some adult education programs also offer useful courses on retirement and insurance needs, money management, and investment techniques. Be sure you inform yourself and "shop around" before settling on the company/ies you want to do business with.

Finally, construction is an area where women may meet strong resistance. Harassment and hazing are definite possibilities. On the other hand, some women have been happily surprised to find the majority of men helpful and encouraging, especially once they had passed the initial "test." It's hard to predict what your experience will be. The following paragraph combines the statements of how five different women feel about their jobs in the construction field:

> "Give it a lot of consideration. Don't go into it just for the money. It's a hard life working in construction. Keep in mind you'll be doing that job constantly--standing, heights, close enclosures. You have to be in good physical condition. Be able to climb and lift. If you worry about being clean and pretty, forget it. Be sure it's what you really want. Be absolutely 100 percent committed--that's the only way to compete against the men--you have to be the best."

Despite the drawbacks, however, these women made it. One woman even has her own crew now. Consider another composite.

> "Believe you can do it. Have a positive attitude. You play a sort of game. For example, heavy lifting--you apply will; apply reason; say 'I can do it,' and you'll find you can. I didn't think I would be able to do the same physical job as a man. I felt it would be much harder. But as I became much stronger due to the work and I got more experience, things got better physically. There's really nothing on a construction site a woman can't do."

If you feel the construction trades are for you, check with your school placement office or local State Employment/Job Service office to see what the opportunities and wages are in your area.

Then you should look at your individual aptitudes. For most construction jobs, you will need an average ability in basic math. You will also need a strong spatial aptitude. Good manual dexterity is important, as is basic motor coordination. Keep in mind, too, that apprenticeships generally have age requirements. In most cases you must be 17 or over and not older than 24 to 27, depending on the particular program you are applying for. Apprenticeships are also extremely hard to get when construction is down in your area. Some women's programs and most vocational schools, however, offer courses in the various trades without age limitations to prepare for nonunion jobs. Nonunion jobs, however, pay considerably less than union jobs.

Construction jobs expected to increase from 20 percent to 37 percent by 1990 include CEMENT MASON AND TERRAZZO WORKER, ELECTRICIAN, ROOFER, FLOOR COVERING INSTALLER, GLAZIER, IRONWORKER, SHEET METAL WORKER AND TILESETTER. Opportunities for OPERATING ENGINEERS should increase by more than 40 percent. Many of these are jobs which do not require above average strength. Cement Mason and Terrazzo Worker, Floor Coverer, Glazier, and Tilesetter are all especially good trades for women strengthwise. We will take a closer look at Terrazzo Worker.

> "My dad was a cement-mason. I liked to watch him work, but it was the terrazzo work that really turned me on--you can do so much with it and get such different effects." (Karen K.)

JOB TITLE TERRAZZO WORKER

JOB DUTIES Terrazzo Workers create durable and decorative terrazzo finishes for floors, stairways, and cabinet fixtures according to drawings and specifications. This is done by applying cement, sand, pigment, and marble chips to the selected surfaces.

Terrazzo Workers begin this process by spreading roofing paper on the foundation surface. A mixture of sand, cement, and water is then spread over it to form the terrazzo base. Metal strips are pressed into the base to form the design or pattern and define the level of the finished surface. Once the base is completed, the Terrazzo Worker spreads a mixture of marble chips, cement, pigment, and water over it. This forms the finished surface. Marble chips are then scattered over the finished surface and a lightweight roller is pushed over it to embed the chips. After the surface drys, the Terrazzo Worker grinds and polishes it with electric-powered surfacing machines.

Terrazzo Workers use tools such as trowels, floats, surfacing machines, and portable hand grinders. Some Terrazzo Workers perform finishing operations only and are called Terrazzo Finishers or Terrazzo Polishers. Most Terrazzo Workers work for contractors who specialize in installing decorative floors and wall panels. Others are self-employed and often specialize in floors.

JOB ENVIRONMENT Terrazzo Workers usually work outdoors at construction sites in a variety of temperatures. Outdoor work is generally stopped, however, during rain or freezing weather. In good weather, you can expect to work overtime. The work is active and strenuous. Most of it is done on floors at ground level, and much kneeling and stooping is required.

INTERESTS AND ABILITIES NEEDED You enjoy (or think you might enjoy) activities such as
--building models from detailed instructions and patterns
--making minor repairs around the house
--working with your hands
--working outdoors
--working in groups

You should also be able to
- --use simple hand tools and machines
- --work with accuracy and precision
- --solve basic math problems
- --picture what the finished product will look like
- --accept responsibility for the accuracy of your work

You will also need
- --a driver's license to commute to construction site
- --physical stamina

TRAINING NEEDED

The terrazzo trade can be learned through on-the-job training as helpers. Two to three-year apprenticeship programs are occasionally available. Employers often look for high school courses in shop math and blueprint reading or mechanical drawing when selecting trainees.

JOB OUTLOOK

Opportunities in the construction industry vary with the general economy. Overall, employment of Terrazzo Workers is expected to increase by over 30 percent through the 1980's.

JOB BENEFITS AND ADVANCEMENT

Except for federal Workmen's Compensation and Unemployment Compensation programs, most contractors offer few benefits. Workers are eligible to participate in individual retirement plans such as the tax-deferred IRA and KEOGH plans. Experienced Terrazzo Workers may advance to supervisors or contract estimators or may open their own contracting businesses.

SALARY

Union wages are considerably higher then nonunion wages. Nonunion wages also depend on the geographic region and the size and economic development of an area. Overtime pay during periods of good weather is very high. Union terrazzo workers earn about $13.50 an hour. The work is seasonal, however, and often involves overtime. There is, therefore, no certain annual income based on the hourly wage.

RELATED JOBS

Cement Mason, Bricklayer. Form Builder, Marble Setter, Iron Worker, Stonemason, Tilesetter.

5

THE NEXT STEP

Traditional or nontraditional--which is right for you? And of the thousands of different occupations, which is best for you? As Sandra G., an engineering student, puts it, "Only teenagers have the time to make mistakes in choosing the right job." Some serious career decisions are your next step. Ideally, you would need only to go to a women's nontraditional program. There are a number of these in most states across the country. Such programs offer the guidance necessary to choose between traditional and nontraditional work. Many of them offer nontraditional training as well.

If your community does not offer a nontraditional program, however, there are some general steps you can take to help you make your career decisions. Organizing your own career search may seem like a lot to do, but with each step you take, your search will take shape. One contact will lead to another; one step will lead to another--even several--more sources of information. And doors sometimes open when you least expect them to. Essentially, all you need to do is READ, ASK QUESTIONS, and EXPLORE. Here are some ways to do this:

- LEARN YOUR OPTIONS--read this Guide; go to the library; read about both traditional and nontraditional careers; compare the training requirements, job duties and salaries; go to women's centers or nontraditional programs for women; go to a vocational school, junior or community college, or your local Employment/Job Service for free vocational counseling.

- DEFINE YOUR JOB VALUES--read this Guide; ask your librarian for books on job values clarification; ask an employment or school counselor to help you explore what you want from a job.

- DISCOVER YOUR INTERESTS--read Chapter 4; go to your library for self-help books and materials; go to a postsecondary school in your area or to your local Employment/Job Service for free interest testing.

- DISCOVER YOUR APTITUDES--list your hobbies; go to your local Employment/Job Service or vocational school for a free aptitude test--it's called the GATB. Be sure to ask for an interpretation afterwards.

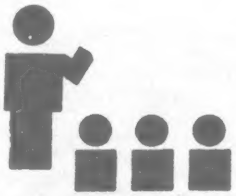
- EXPLORE THE JOBS--read Chapter 4; take field trips; call the personnel offices of large companies and ask if you can visit them for information. They may even give you a guided tour so you can see and talk to workers on the job, women's centers and nontraditional programs may organize field trips for you. Get job information from your library (ask for the Occupational Outlook Handbook and the Guide to Occupational Exploration); go to the Employment/Job Service Office and ask to see a counselor; go to women's centers and nontraditional programs; go to an area vocational-technical school for information and counseling.

- TALK TO ROLE MODELS--these are women currently working in nontraditional jobs. Most of them will be delighted to talk to you. Women's centers and nontraditional programs often bring role models in as speakers. They may even give you a list of women you can call yourself. Ask them everything; tell them your concerns. They'll answer you openly and honestly.

WHERE TO GO FOR TRAINING AND INFORMATION

If you would like to find out more about training for nontraditional work, there are several types of schools you can go to for firsthand information about training. One or more of these schools can be found in most communities--you need only to go to the one closest to you. (If fees are charged, they are often lower for local residents too, which is another important consideration.) Here is a list of the types of schools you will find are most likely to suit your needs:

- Vocational High School
- Area Vocational-Technical School
- Trade School
- Technical Institute
- Community or Junior College
- Private (Proprietary) Vocational School



Be sure that private schools have been accredited. This indicates that they maintain minimum standards and their programs are recognized by other schools and employers. Private vocational and trade school fees may be high. Some, however, may have particularly good programs in certain fields. Remember, too, that not all financial aid can be used at private schools. Veteran's benefits can, however, be used at accredited private as well as public schools. You will find both private and public schools listed under various headings in the Yellow Pages of your telephone book. Check under "Schools--Industrial, Technical, and Trade; Colleges; Vocational."

The main drawback to full-time study is the lack of income while in training. The school may, however, help you get a part-time job if you do not already have one. Most schools have evening programs so that students can work full-time and study part-time. This, of course, lengthens your training time. There are also apprenticeship and pre-apprenticeship programs in some communities. Some communities also offer union and trade programs and may have industrial training programs as well. Many of these start you at entry-level wages while you train on-the-job. (Be sure you read the section on financial aid--it's in Chapter 3.)

It is not always easy to uncover all the training possibilities. You need to be thorough in your search and check out all of the programs in your area. Compare types of programs, length of programs, costs, and placement rates. Some good places for information about union or industry training are:

- APPRENTICESHIP INFORMATION CENTERS--these centers are run by State Employment or Job Service offices in certain cities. In other areas the Employment/Job Service staff can help you. Ask to see a counselor. Remember, however, that apprenticeships are difficult to get and usually have age limits.

- PRIVATE BUSINESSES AND INDUSTRY--Check your Yellow Pages for companies that hire people in your area of interest. Don't go to one or two and give up. Keep searching until you find one that offers apprenticeships or on-the-job training.

- LOCAL UNIONS--if your area is unionized, go to several in the general field you think you might be interested in. Ask about their training programs and apprenticeship opportunities.

- APPRENTICESHIP OUTREACH PROGRAMS--programs in over 100 cities will counsel you about apprenticeships and help you prepare for the required tests. Some are operated especially for women and minorities. Check the phone book for the groups that run such programs. A few well-known programs are:

  --Recruitment and Training Program, Inc.
  --Opportunities Industrialization Centers, Inc.
  --AFL-CIO Human Resources Development Institutes
  --Urban League LEAP programs

If you have a very low income, you may be able to get training through displaced homemaker programs, and Job Corps. To be eligible for displaced homemaker programs you must be widowed or divorced and have been a homemaker for several years. Job Corps is for young people between 16 and 21 who live at the training center and qualify by income level. The centers frequently offer pre-vocational as well as vocational programs, so you can try out a trade before going into a lengthy program.

Other places which may offer special nontraditional programs for women along with information and counseling are women's centers and regional Women's Bureaus of the U.S. Department of Labor. Women's centers can be located by calling your local Information and Referral Service. This agency, if your community has one, can tell you where to get further information and training. It is listed in the telephone book. Women's organizations such as your local chapter of the National Organization for Women (NOW) or your city, county, or state Commission on the Status of Women may also be helpful. Regional Women's Bureaus will be listed under the U.S. Department of Labor if you live in Atlanta, Boston, Chicago, Dallas, Kansas City, New York, Philadelphia, or San Francisco. State Departments of Education and local State Employment/Job Services can also give you information on training and how to apply.

WHAT TO ASK WHEN YOU GET THERE

Before you visit the schools or programs that interest you, make up a list of questions you want to ask. You might even make written notes of the responses. Questions might include:

- Is the school accredited (in the case of private schools)?
- How many, and what kind, of training programs are available?
- How many women are enrolled in nontraditional courses?
- How many women are enrolled in the course you're interested in?
- How many women have graduated from nontraditional courses?
- How many women have dropped out of nontraditional courses?
- How many women have been placed in nontraditional jobs?
- How many of these were placed by the school staff?

- How can the school help you decide which particular program you have the aptitude and interest for?
- Are there any special counseling or support programs for women available?
- Are there child care arrangements on campus?
- Is there financial aid available?
- Is there public transportation from your area to the school? How often does it run?

Don't hesitate to ask questions. Not all schools will have answers to every question, of course. Such data takes considerable time to collect. On the other hand, schools that have little or no information about women in nontraditional programs may not be very helpful to you. Your best bet will probably be to find a source of training that understands women's needs and provides special services to meet them.

HOW TO SUCCEED IN TRAINING OR ON THE JOB

Let's assume you have decided that a nontraditional job is the answer for you. You may have decided which kind of training you want and where to get it. Some of you may even have been hired in a nontraditional job.

But once you're enrolled and start classes or report on the job, how can you be sure you'll make it? Your training program or employer's orientation may give you some idea. The women have all told you how important it is to keep a positive attitude and HANG IN THERE. Here are a few suggestions you might also find helpful:

- BECOME COMPETENT IN YOUR FIELD OF WORK--take the training you need and study hard. Ask to use the school shop during off hours to get extra practice if you need it.

- KNOW YOUR ORGANIZATION--study and understand the company or institution you work for or are training in. Learn how your job or program fits into the whole.

- WORK HARD AND BE DEPENDABLE--don't wait to be asked. Be a good team player; both employers and co-workers will appreciate that.

- LEARN HOW TO BE AN ACTIVE UNION MEMBER--if your area is unionized, remember that good union members can help make changes.

- VOLUNTEER FOR ASSIGNMENTS--even dirty ones. You'll get a reputation as a "doer" and it's one of the best ways to advance on the job or in training.

- KEEP UP TO DATE--study the new methods and techniques. Just a little extra reading can keep you on top of your field.

- JOIN WOMEN'S SUPPORT GROUPS--they can give you tips, encouragement, and help you work through any problems you may have with the job or your training.

- DO WHATEVER THE JOB REQUIRES.

The purpose of this guide is to give you a sound base of information regarding nontraditional occupations. If it helps you to make the right decision, then it has achieved its goal. You must be sure, however, that the decision is yours. Remember--it's your life and you must be happy with what you do with it. Family, friends, employers, or teachers --all of them may offer advice. But only you know what is right for you.

SELECTED READINGS

If you would like to read more about nontraditional jobs and job training, the following readings should be helpful.

Apprenticeship and Other Blue Collar Job Opportunities for Women. 1978. Women's Educational Equity Communications Networks, Far West Laboratory for Educational Research and Development, 1855 Folsom Street, San Francisco, CA 94103.

Earning a Breadwinner's Wage: Nontraditional Jobs for Women on AFDC. Women's Enterprises of Boston, 739 Boylston Street, Boston, MA 02116.

Kreinberg, Nancy, ed. I'm Madly in Love With Electricity and Other Comments About Their Work by Women in Science and Engineering, 1977. Lawrence Hall of Science, Attention: Careers: University of California, Berkeley, CA 94720. Seventy women working in nontraditional jobs talk about their work.

Lederer, Muriel. Blue Collar Jobs for Women. New York: E.P. Dutton, 1979. Nontraditional jobs for women in the skilled trades and where to write for more information. Personal accounts of women in the trades.

Lederer, Muriel. New Job Opportunities for Women. Skokie, Illinois: Publications International, Ltd., 1975. Traditional and nontraditional jobs that are currently in demand. Good even if you're undecided about nontraditional. Special emphasis on new science and technology jobs and where to get more information. Personal accounts of women in these jobs.

National Directory of Women's Employment Programs: Who They Are: What They Do. 1979. Wider Opportunities for Women, Inc., 1649 K Street, NW, Washington, DC 20006.

Splaver, Sarah. Nontraditional Careers for Women. New York: Julian Messner/Simon & Schuster, 1974. Descriptions of over 500 careers.

Wetherby, Terry, ed. Conversations: Working Women Talk About Doing a "Man's Job." Millbrae, California: Les Femmes Publishing, 1977. Twenty-two interviews with women in nontraditional jobs. They tell what they do, how they got the jobs, and how they feel about it all.

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